COAL AGE

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Prices, Wages and Business

By Floyd W. Parsons

IT NOW appears that general prices of commodities will experience no sudden drop. The reasons creating this situation are the scarcity of foodstuffs and the lack of certain important raw materials. A further reason is the assurance that expanded currency and credit will contract more slowly than the volume of business. True, there is already a downward trend in the prices of most commodities that have entered largely into the manufacture of munitions; but even this adjustment shows no indications of being precipitate.

In practically all industries American corporations have been fortified against the dangers of reconstruction by the creation of substantial reserves for plant changes and the depreciation of inventories. The war's demand for quantity production brought about important changes in industrial processes and caused improvements in machinery, which has resulted in an increase in the output per unit of labor. Great benefits will come from this and the standardization of industrial methods. The war also has given us many new industries, such as shipbuilding and the manufacture of chemicals and dyes. These new businesses will afford an additional outlet for our enlarged production of raw materials.

During the period of the war this country increased its pig iron production 22 per cent., its copper production 17 per cent., and its coal production nearly 33 per cent. This immense industrial development renders it necessary that we add additional foreign markets to those America supplied in pre-war times, and contrary to the belief of many, our greatest opportunities do not lie in Great Britain, Belgium and France. Those nations will purchase from us many of the things we sold them prior to the war, but indications now plainly show that these allies will be able to take care of most of their own reconstruction work.

Belgium's fuel requirements present no insurmountable problem, for the mines of that country can be rebuilt with the same rapidity as can the Belgian industries, and as to her general needs, we must remember that Belgium has large raw-material resources in the Congo. As for France, we now know that southern France has undergone an industrial expansion almost equaling, and to a large extent counteracting, the devastation work of the Huns in northern France. When the armistice was signed France had 35,000 more people working in her various industries than were employed at the outbreak of hostilities. The nation is better able to supply its present needs than most of us imagine.

We in America should profit by the lessons in economics resulting from the Napoleonic and American Civil Wars. The situation then was saved by the returning soldiers settling on new lands; thereby developing new areas and creating new markets for industrial products. In the years immediately after our Civil War, American industries grew steadily and more than doubled in the 15-year period from 1865 to 1880. The greatest influence back of this prosperity was the growth of population in hitherto unsettled regions. The world's undeveloped area today is relatively as large as it was then, due to improvements in transportation facilities. Distance has been largely eliminated.

America has changed from a debtor nation of $5,000,000,000 to a creditor nation of $8,000,000,000. Our people have been converted into a nation of bondholders. It is only reasonable to expect that Americans will place a considerable part of their savings during the next few years into foreign bonds, and this will go a long way toward solving the problem of financing our export trade.

Unless we lose our heads, it will not be many months before the United States will enter a period of prosperity that will surprise even the most ardent optimist. The speed and success of this industrial expansion will depend on our Government accepting its present opportunity. To go ahead, the greatest need is for increased transportation facilities. We must have adequate terminal arrangements to avoid congestion of traffic, enlarged port facilities, greater development of waterways, better national highways and more irrigation projects. All of these developments are essential to national expansion and will afford employment at an opportune moment for thousands of men released from our military forces. Supplementing such action, let our legislators modify their pre-war policy toward industries, removing harmful restraints. We must, of course, prevent monopolistic practices, but we should also provide for large-scale production without the waste brought about by senseless competition.

If America in coming months meets with embarrassments in her industrial life, the fault will lie in her failure to meet the situation with courage and sense, for never in history has a nation been so well advertised and so favorably known throughout the world.

IDEAS AND SUGGESTIONS

Determining Length of Diagonal Crosscuts Between Parallel Headings

BY P. M. SHERWIN
Blue Diamond, Ky.

At many of the smaller coal mines that do not employ a resident mining engineer, considerable difficulty is experienced when, in order to pick up a lagging parallel heading or drive a haulway at other than right angles, it is desired to know just when to stop driving in order to keep the heading centers at the proper distance apart. The diagram below is to be used in connection with that

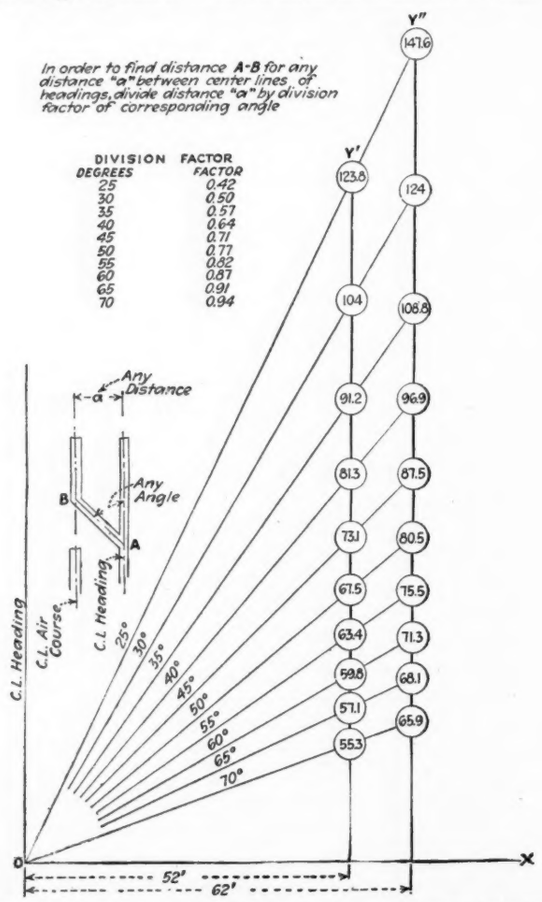


DIAGRAM GIVING DISTANCES FOR DRIVING ANGLES

shown on page 9 of the "Coal Miner's Pocketbook," 11th Edition. This latter diagram tells how to lay off certain angles without a transit, while the one shown here will give the distance that should be driven on the corresponding angle.

This particular diagram has been evolved for the use of the mine foremen of the Blue Diamond Coal Co., in the mines of which the main headings are driven on 62-ft. centers, and room headings on 52-ft. centers. In order to find the proper distance center to center, follow up the perpendicular line which corresponds to the distance between headings until the line of the angle used intersects it. The figure found there will be the distance to the center of the parallel heading. When the angle is more than 70 deg. the distance will be so nearly equal to the perpendicular distance that the latter, with a small allowance, can be used.

By using the division factors a diagram may be constructed for any distance between entry centers. The division factors are the natural sines of the angles. The distance to the right from *O* along *OX* should be laid out to scale. In the accompanying diagram a scale of 10 ft. to the inch has been used. When this work is done accurately the same scale can be used to read the required distances directly along the lines of the angles starting from *O* to the point of intersection with the vertical lines *Y'* and *Y"*.

This diagram was suggested by H. H. Braden, superintendent of the Blue Diamond Coal Co., and was worked out by myself.

Remelting and Using Old Metals Proves Economical in Practice

BY FRANK HUSKINSON
Trinidad, Colo.

The majority of mines simply scrap all brass and white metal bearings and bushings when they become too badly worn for further use. This is a waste of good material that can readily be converted into new bearings more cheaply than new ones can be bought. With remade bearings, also, a better fit can be secured. New bushings from the factory are always of a standard size, and a shaft generally wears more or less after being in service for some time, and in many cases has been cut down to a smaller diameter.

I have followed the practice of melting old bearings and bushings and pouring them into suitable molds, then boring and turning them to the proper size on a lathe. In melting old brasses and white metal bearings I use a good sized ladle and a forge fire.

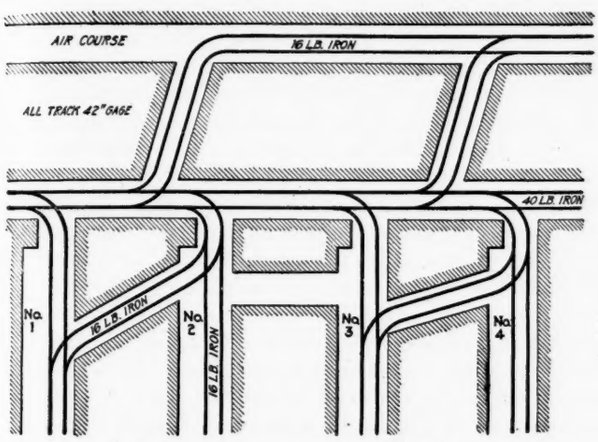
In melting white metal to be cast into molds, the heat should be brought up gradually. As soon as the metal is melted the top should be covered with powdered borax, and enough heat applied to bring the metal up to the pouring point. If the metal is melted and brought to the pouring point without covering with the borax, a portion of the alloy, such as zinc, will oxidize and be lost. The action of the borax is that it smothers the metal and prevents any of the alloys separating. When pouring into the molds the borax cover is simply held back, allowing the clean metal to be poured off.

Ordinary brass scrap can be melted in the same manner and poured into molds. Precautions should be taken, however, not to overheat any metal. Enough heat should be applied to bring it to the pouring point. Care should be taken to see that all molds are free from moisture, as molten metal and moisture do not agree.

Peculiar Arrangement of Mine Track

By Mine Foreman
Hanover City, Penn.

We are using a track arrangement in the mine where I am employed that might benefit some *Coal Age* readers. The heading in question is being driven to the rise and considerable energy is required to push a car around a room switch. Consequently, I arranged the track as shown in the accompanying illustration. When the locomotive comes in with the empty trip the motorman pushes five or six cars into rooms Nos. 2 and 4. The men can handle them from the track between the



HOW TRACK WAS ARRANGED

rooms, as may be readily seen. When a car is loaded it can be left in the roomneck and not dropped out onto the heading. This is advantageous to the cutter, as he can travel along the heading and not have to shift cars.

The arrangement shown takes considerable track work, but I believe it pays. The men are better satisfied and the cutter can get around much faster. We also use it in the air course. The motor pushes empty cars into the shoofly, or diagonal crosscut, nearest the face of the heading and the men drop the loads out of the lower shoofly, or rather keep them off the heading. Thus the heading is practically clear at all times.

Equalizing the Generator Load

By J. J. Nolan
Linton, Ind.

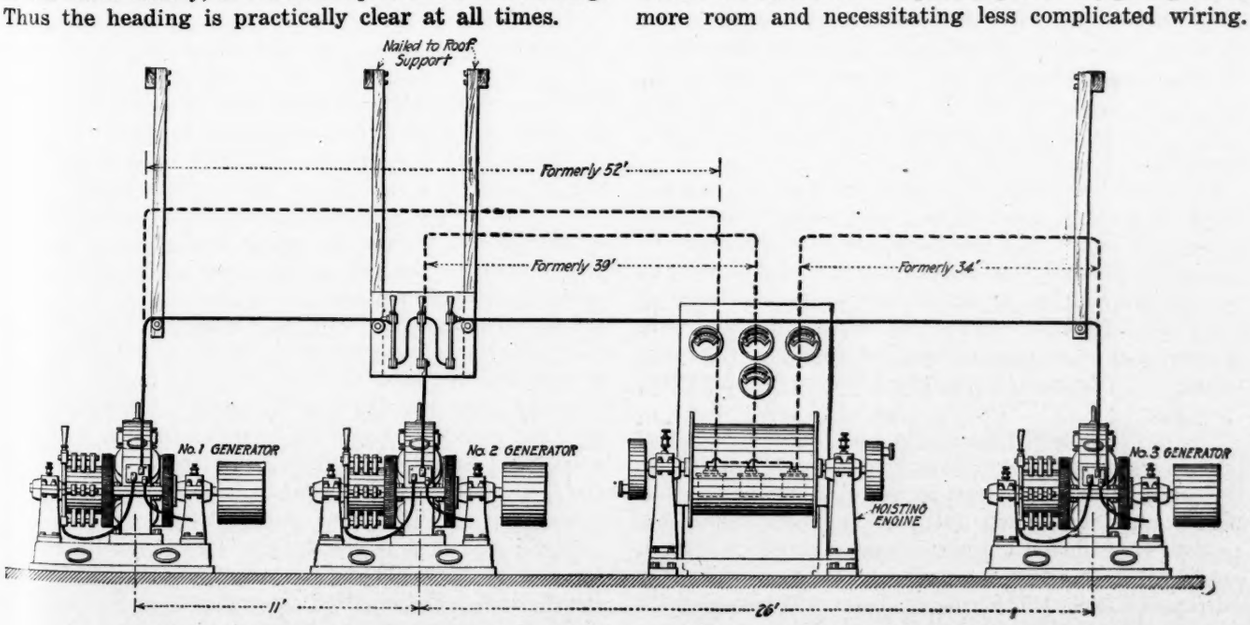
This description and the drawing shown below may interest some readers of *Coal Age* who have, in their plants, similar conditions to those here portrayed. The plant referred to, together with the mine it serves, was purchased by the company with which I am connected about three years ago. The mine is a large producer of coal.

The power plant building was intended for only two generators, but a third was added by the former owners, to take care of the increased load. As might be expected, this caused quite a difference in the length of generator lead cables.

When carrying a fair load the belts and engines put one in mind of a horse race. First one and then another had the lead. When the load was light they would motor each other, causing bad communication at times and continual moving of the rheostats throughout the day. The three generators and hoisting engine were set side by side in almost a straight line, while the switchboard was 25 ft. behind the hoist and erected on the rear of the hoisting engine-room platform without taking into consideration the efficiency of the generators.

The change, as may be noted, was not expensive and effected quite an improvement in the operation of the generators. The only extra work imposed on the engineers is the task of walking around in the morning at starting time to throw in the equalizer switches and pull them out after the day's run is over.

If only two generators are operated, the connections on single-pole switches are arranged so that any two machines can be used. The long equalizer cables going to the board were employed to increase the capacity of the positive and negative of No. 1 and No. 2 generators, these machines being farthest away. The change did away with several connections on the rear of the switchboard and equalizing bus too, giving much more room and necessitating less complicated wiring.



SHOWING ARRANGEMENT OF GENERATORS AND HOISTING ENGINES FOR EQUALIZING LOAD

Chain Making and Repairing in the Mine Blacksmith Shop

By J. T. SPRINGER
New York City

SYNOPSIS—*The average coal mine blacksmith has a wide variety of work to perform. Although most of this will be repairs, some manufacturing may well be done. Car couplings and special chains fall in this category. The manufacture and heat treatment of chains and chain links is here described.*

NATURALLY, the amount of blacksmithing done around a coal mine is considerable. One of the large items will be the forging and hardening of cutter bits. In addition to this, however, there will be miscellaneous work covering a wide range. Consequently, the mine blacksmith needs to be a good all-around man—one who can do the usual things and also one not afraid to tackle a job out of the ordinary. Much of the miscellaneous work will be repairs, but some items—for example, the chains and coupling links used in and around a mine—may well be manufactured in the mine shop. It is the purpose of this article to give practical and reliable information that, if properly utilized, will tend to make the mine its own producer as well as repairer of chain, coupling links, chain hooks, etc.

Let us begin with the chain hook. This may be made without a weld, so that the problem is one of forging. There may be, in addition, an annealing operation. Suppose that the hook desired is to be 3 in. long, is to have a $\frac{5}{8}$-in. entrance opening and a $\frac{3}{8}$-in. eye-hole. Such a hook may frequently be conveniently made from $\frac{1}{2}$-in. round stock. A short length a trifle over double the length of the finished hook is cut off. This piece will be, say, $6\frac{1}{2}$ in. long. Since it is desirable to form the eye without welding, it is necessary to upset one end in order to secure enough metal. A mark may be placed, say, $1\frac{1}{2}$ in. from the end of the blank as a reminder of the amount of stock that should go into the cruller-shaped eye.

To do the upsetting, the smith will heat the marked end to a medium forging heat and cool off the metal between the mark and the farther end of the blank by means of water. The water may be applied with a hose, by pouring, or by dipping the blank into the bath a sufficient distance. The object of cooling the major portion of the bar is to prevent movement of the metal throughout that part of the blank during the upsetting operation.

The actual upsetting may be accomplished in either of two ways: (1) The blank may be held vertical on the anvil with the hot end up and the hammer used to beat the hot metal down until the $1\frac{1}{2}$ in. has diminished to 1 in. This amount of shortening and consequent thickening will be about right for an eye $1\frac{1}{8}$ in. in diameter, with a $\frac{3}{8}$-in. hole. The ring of metal will have a thickness of about $\frac{3}{8}$ in. (2) Instead of holding the hot end up, it may be held down on the anvil, while the hammer or sledge is used against the cold end. There is, perhaps, some objection to this latter method because it tends to waste the heat. The anvil, being cold, absorbs heat from the hot end of the blank and may thus interfere with the upsetting operation. One or two men may do this work. This depends upon circumstances and the skill and strength of the smith.

After the shortening, the upset end is heated up again and the upset metal flattened out to form a circle about 1 in. across and $\frac{3}{8}$ in. thick. It is possible that there will be manifested a tendency of the eye blank to increase more in one direction than in another as the flattening proceeds. In such case the hammer may be needed to give a few upsetting blows. The eye end of the blank may be held against the edge of the anvil during this operation.

After a proper circular form $\frac{3}{8}$ in. thick has been secured and the corners rounded, the eye blank may be heated again and a $\frac{1}{4}$-in. hole punched. The punch will doubtless get warm and need an occasional dipping into water to maintain it at proper temperature. The punching of the hole may be done partly from one side and partly from the other. That is, the punch is made to

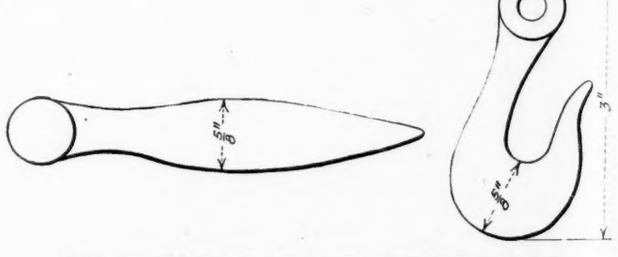


FIG. 1. HOOK BLANK AND FINISHED HOOK

penetrate about halfway from one side and the same operation repeated from the other. A small core will be formed, but this may be driven through the hardie hole or the pritchel hole of the anvil. Some blacksmiths put a small amount of coal or coke dust into the depression made when the punch has got well started. The driving of the punch will then be facilitated, because its end will not heat up so readily.

The finishing of the eye yet remains. While no substantial weld is to be made in the hook, it will be well to heat the eye to a welding heat and to beat in and together any stray fibers or filaments. The punch or a suitable mandrel should be stuck into the hole and allowed to remain there during this operation. In fact, the final shaping of the metal to form a smooth rounded surface may well be done at this time.

The punch may need attention from time to time to keep it in place. The redriving of this tool to keep it right, and perhaps other movements, will naturally result in opening up the hole a trifle beyond the $\frac{1}{4}$ in.

If a hole precisely ⅜ in. in diameter is required, it may be well to finish with a ⅜-in. punch. The eye should be well rounded so that it will not tend to wear on the link or bolt passing through it.

The remainder of the forging of the hook will now be rather simple. The main portion of the blank is heated and flattened to the ⅜-in. thickness. It is desired to have the metal swell out at about the halfway region of this main portion or where the bend of the hook will be made. A sufficient widening may well occur during the flattening to ⅜ in. If there results a swelling to ⅝ in. this will probably be about right. The piece is tapered, but rather gently, between the eye and this broad section. This tapering operation will tend to lengthen the whole piece and must not be carried so far as to thin the metal below the thickness of ⅜ in. On the other side of the broadened region the piece is tapered rather more decidedly to a tip at the end. The entire length of the piece should now be about 6⅜ in. The corners are rounded and the hook-shaped form imparted. This latter is done on the horn of the anvil with the aid of a light hammer. All that has been said about forging, punching, bending, etc., will apply equally well to similar operations on other classes of work as well as upon hooks.

The making of chain links divides itself naturally into light and heavy work. Perhaps the most severe operation is the bending of the blank to the link form. When the size of the stock is sufficiently small to make this an easy job for one man, the whole work of forming and welding the link may well be termed light chain making. If the bending requires two men, we have heavy chain making.

The chain and links used at mines may include both classes, although the heavy chains will not run up to such enormous affairs as those used at the locks of the Panama Canal or those employed for mooring battleships. Chains have been made up to the size where the stock used was 4½ in. in diameter. While the mine will not have any work of this description, it may possibly have chains and links made from stock heavy enough to require two men to form and weld.

Chain links are open, if the link is a simple oval. Stud links are those which have a crosspiece amidships dividing the open space into two apertures. The crosspiece is called the stud. This is welded into place and naturally stiffens the link. Undoubtedly, an open link provided with a suitable stud is stronger than it was before. But this is not the proper way to make the comparison. The real question between open and stud links is whether it is better to put additional metal into a stud or into the plain oval, thus giving the sides of the link a larger cross-section. I doubt if this question has been satisfactorily answered. Considerable chain of both varieties tends to show that a strong difference of opinion exists.

Links may be welded on the side or at the end. The end-weld link seems to be the better type, especially for large stock. Even for small stock, the objection that the side-welded link is apt to be one in which the two parallel sides under heavy stress do not yield the same has to be considered. There is a remedy, more or less adequate, in the shape of heat treatment. Unless this is to be applied, it is probably better to decide against the side-welded link.

If, however, heat treatment is to be employed, and those in charge are going to insist on sufficient experimentation to guarantee a satisfactory procedure, the side-welded type may be used and the advantage of easy bending gained; for the side-welded link is more easily bent in the region of the weld for the reason that these bends are further from the ends of the blanks and may consequently be made with the assistance of a greater leverage. The two bends near the weld of an end-welded link lie quite close to the stock ends and naturally present some degree of difficulty for that reason.

The length of stock required for a link will naturally depend on the inside length of the link, the inside breadth and the diameter of the stock. These three factors are the ones that principally govern. The precise form of the oval will also exert an influence; but, ordinarily, the foregoing items are the ones that control.

I will give an example or two by way of illustration. A well proportioned link made from ⅜-in. round stock will have its inside length equal to 1⅝ in. and its inside breadth to ¾ in. With these dimensions as guides, a neat form of link may be produced with straight parallel sides and circular ends. The overall length is 2⅜ in. The length of stock required closely approximates 5½ in.

This style of link may be made in various sizes by using the following formula:

$$L = 14.1 \times d$$

Where L = the length of stock in the blank and d = the diameter of the stock. Both are expressed in the same unit, such as inches or centimeters. The link produced will have an inside length of about $4.33d$. The overall length will be about $6.33d$, and the inside and overall widths, $2d$ and $4d$ respectively. The diameter of curvature is $3d$. The curvature is here reckoned as that of the axis of the stock. The curvature of the horn of the anvil where the bending may be done will be $1d$ less—that is, $2d$.

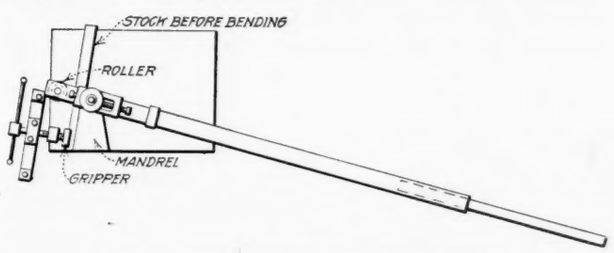


FIG. 2. JIG FOR BENDING LINK STOCK

Another type of link is the ship's cable form. Here, with 3-in. stock, the blank is made about 37 in. in length, which is decidedly shorter than would be the case with the link formed according to the formula already given. That formula would require 42.3 in. of stock. This marine link is accordingly somewhat shorter relative to its breadth. This is perhaps an advantage with big chain in preventing tangling.

In order to determine the number of links required for a given length of chain, we divide the chain length by the inside length of the individual link. The chain length is here taken as the usable length—that is, the distance from the inside of the free end of one terminal link to the inside of the free end of the other terminal link.

To make the small link described from ⅜-in. stock, the

smith cuts off 5.3 in. from a stock bar. This is 14.1 times the ⅜-in. diameter. The ends are cut square. The blank is now heated to a cherry red and then bent to a U-form. The curve is to be $2d$ in diameter, or in the present case, $2d = \frac{3}{4}$ in. Consequently, the bending may be done at that point on the horn of the anvil where the calipers show the diameter to be this amount. If a good many links are to be made, it may seem desirable to arrange a steel bar horizontal or vertical and to do the bending around it. The bar will naturally be of ¾-in. round stock or be forged to this size. The advantage over the anvil would be the elimination of the necessity of continually noting at just what point on the horn of the anvil the bending is being done.

The scarfing of the ends may be done by the following method, which is the one recommended by T. F. Googerty. The U-shaped piece is held on the left-hand corner of the anvil at the base of the horn with the legs of the U making an angle of about 45 deg. with the edges of the anvil. Both legs are held with their ends on the anvil top, the right-hand leg having but a small amount of bearing while the left-hand leg has perhaps a third or more of its length overlapping. The smith then strikes a blow with his hand hammer on the hot U-shaped piece. Before striking again, the piece is shifted a little. That is to say, the end of the right-hand leg is held to its original position and the

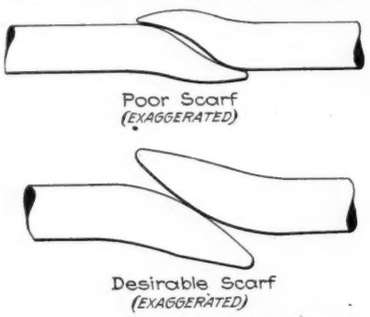


FIG. 3. GOOD AND BAD SCARFS

other leg withdrawn a trifle from the anvil top. In a sense, the one end rotates (in a horizontal plane) about the other end. By striking and shifting, striking and shifting, in the way described, a bevel may be produced. "The scarf consists of a series of slanting notches."

In scarfing it is desirable—not to say necessary—to produce two convex surfaces, to oppose each other at the moment of welding, rather than two concave surfaces. That is to say, when the ends that have been scarfed are overlapped for the purpose of welding, convexity should oppose convexity. Doubtless this requirement is more important with big links than with small ones. It will be best, however, to observe this rule, regardless of the diameter of the material.

It is not considered good practice in chain making to make two links and then thread the intermediate one into them and weld it shut. When one link is made, the next is threaded into it and welded; then the third link is threaded into the second and welded; and so on. In this way the chain grows link by link.

Let us return now to our small link. The U-piece has had its ends properly scarfed. It is now necessary to bend them toward each other, thus forming the end of the link by overlapping. Naturally, the smith will use the horn of his anvil and bear in mind the curvature he ought to produce; otherwise he will use some substitute for the horn, such as the rod of uniform curvature already suggested.

After proper shaping, the link may be heated and welded. The threading onto the chain already made may well be done after shaping and heating for the weld. This gives opportunity to do all the heating without the nuisance of the interference of the chain already made.

Naturally, the sizes of chain used about a mine will not involve the handling of excessively heavy links. At the same time, the smith may be called upon to handle sizes where he will need assistance in the bending and other operations. The blank at first is straight and the ends are cut off square. The whole piece is heated, but the center is given more heat than the ends. If the size of the blank permits, the heating may be done without reversing the piece. Should this be necessary, however, it may be done; but, if possible, the smith will aim to do the heating without such reversal.

Bending the Link

The bending of the blank is accomplished either on the anvil or by means of a suitable jig. The weight and stiffness of the blank will naturally guide the smith as to what he should prepare for. At any rate, a bending device is readily made and will be quite useful if the smith has much heavy work to do in making coupling links or the like. For this purpose a slab of metal is provided for the base of the device. On this slab, near one corner, a mandrel is firmly secured. This is a block of metal having a form suited to guide the bending of the blank. Naturally, the mandrel will present the outline of a U or of a V with rounded point. The edges of the mandrel against which the blank is bent may be grooved. This is probably unnecessary with links of moderate size. The blank is, at the time of bending, placed close up against one side of the mandrel and securely held there. The portion not in contact is then forced around the mandrel block.

The bending is done with a lever or sweep, pivoted on the nose of the mandrel and arranged to rotate in a horizontal plane. At the short end of the sweep, a roller is arranged to bear against the blank as it lies against the mandrel. By swinging the sweep in the proper direction, the roller forces the blank to conform to the shape of the mandrel. In the work occurring in and around a mine, it will hardly be necessary to provide anything more than some suitable holes in the slab and some plugs or studs to fit into them. A plug may be set in place to hold the blank. An ordinary swage block may often be used for this purpose.

Whatever the desirability of using a special device may be, the smith will probably find that he can, at a pinch, do some pretty heavy bending on the anvil, especially with the aid of a helper.

With the same heat that was used for bending heavy stock the turning in of the ends may be accomplished in part. With small chain, including possibly all sizes wanted at a coal mine, it may seem better not to attempt any end-bending immediately after the bending of the blank at its center. With moderate and small sizes it may be much more convenient to do the scarfing while the U- or the rounded V-shape is maintained. It appears to be good practice with big chain to do the

scarfing after the ends are started upon the inward bend but before the full operation is completed. A difference thus exists in handling big and little work. The smith's own judgment will determine where the dividing line is to be drawn.

I have already pointed out that the convex form of scarf is to be preferred to the concave. This is an important matter, as good scarfs tend to produce good welds and poor scarfs tend to produce poor welds. The reason appears to be this: With concave scarfs, there is a tendency to include dirt or foreign material of some kind between the surfaces to be welded. Convex scarfs tend to crowd such material out of the weld, particularly if the hammering begins in the center of the welded region. Material included between the surfaces in a weld means an area of no union of metal. A further point about scarfs is concerned with the character of the edges. There should be no sharp and thin edges or other parts because when the high heat necessary for welding is applied such parts are liable to damage by oxidation. Consequently, it will be well to round all edges and terminal portions.

Where the scarf surfaces will not get dirty from the fire when the welding heat is imparted, it may prove useful to roughen or score them with the edge of the hammer. But if dirt may be gathered by such indentations, it may be better to provide thoroughly smooth surfaces. Where dies are employed in scarfing, scores in the upper die seem to be of service in producing better welds.

The Proper Length of Scarf

The length of a scarf is also a matter of some importance. A tendency exists with some to make the scarfs too long. It is recommended that they be somewhat longer—say, 50 per cent.—than the thickness of the stock. "If the scarfs are too long, they will overlap one another too far and can not be welded down quickly enough. If too short, they hammer down too quickly to make a good job, and the weld will be thin. If the scarfs are the right length and about the same size, which is important, the weld will finish down in good shape and make a smooth job, providing the ends are clean. When the pieces being heated look as though they are covered with grease, you may be sure the fire is dirty, or is too new." "The fire must be a clean one. A well burned fire is best. A new fire is not a good one to raise the welding heat in, as there is too much smoke and green coal that comes in contact with the metal."

In both forging and welding much depends upon the character of the fire. Ordinary soft coal is unsuitable, because of its sulphur content. There are some special seams or beds of soft coal which are more or less free from sulphur. Such fuel is, perhaps, permissible, but wood charcoal is more suitable. Coke contains less sulphur than the coal from which it is made. Anthracite is also a usable fuel. Fuel oil is suitable, provided the furnace arrangements are such that the metal is not close enough to the burner to encounter the gases before combustion is complete.

The welding heat is about 1900 to 2000 deg. F. It probably varies with the carbon content of the steel. At any rate, the metal will not only be yellow, but will be around a white heat when it is in proper welding condition. At first, the blast is operated slowly. When a yellow color appears, it may be increased. The ends should be managed so that both are heated alike. It may be necessary to keep a pretty close watch in order to cover this point. Attention may be given also to the edges and thinner portions of the scarfs to see that they do not heat up too rapidly as compared with the rest of the scarf. "It is a good plan sometimes, when the pieces are about a yellow heat, to shut off the wind for a moment and let the pieces and fire even up, and give the heat a chance to soak through them. As the pieces become nearly white, the blast is increased."

The length of time between taking the work out of the fire and actually beginning the welding operation is important. A striking illustration of this was afforded by the case of five doublets (two links) tested to breakage. All were made of heavy stock and with oil heating. The first doublet, however, was made with the regular man in charge of the crane, which transported the work from fire to anvil; the others were made with an inexperienced man in charge of the crane, who was able to manage only one movement at a time and so secured slow transportation. The first doublet broke at a stress of 568,100 lb.; the remaining four at an average of 489,410 lb. This was a loss of 14 per cent. in strength.

Necessarily the steel or iron used in making chain is damaged by the very process of manufacture. This damage may, however, be confined mostly to the welding. The heats really needed to effect the bendings and the scarfing do not involve much injury to the quality of the metal, but this is by no means the case with the welding heat. As steel is heated from medium cherry red, its structure undergoes changes while the chemical constitution remains unaltered. It is the structure that has varied its condition. That is to say, steel is made up of grains or crystals which may or may not have an intervening film between them. These grains begin to grow as the temperature rises above medium cherry red. Apparently, there is no stopping point until the metal is about to melt or does melt.

If the heat is stopped at any point above the medium cherry red, the grains will cease to grow. But unfortunately, they will not return to their original and normal size. I say "unfortunately," because large grains are an accompaniment of deteriorated quality. Enlarged grains mean reduced strength. If we want the original quality and strength, we must force or coax the grains to go back to normal size.

Fortunately, there are methods of doing this. One process depends upon working the metal. The forging hammer, the rolling mill, the draw bench, etc., are means which are more or less successful in breaking up big grains and inducing them to remain small. The second method accomplishes its results with less outward violence. It consists in heating up the metal again, beginning at a point below medium cherry red and proceeding to a point that varies with the character of the steel. The result is that the big grains break up and a re-formation takes place. The new size of grain will tend to approximate the size which corresponds to the temperature at which the heating is now stopped.

Both methods are good. However, in actual practice it is not always possible to make the blows of the hammer or other means of working the steel reach everywhere. Every part of the weld and the adjoining metal

that was highly heated will be damaged steel. To restore the quality with the hammer, the effects of the blows must reach all, and not merely some, of the damaged spots, inside and outside. There are parts of the weld where the hammering will generally be sufficient; but there are interior portions and regions distant from the weld where the smith may neglect or be unable to hammer.

If it is proposed to restore by hammering the quality of the metal in a link after it has been heated at the joint to 1900 or 2000 deg. F., let the smith bear in mind two things: (1) The restoration is not to be expected everywhere unless he hammers everywhere. The interior will not be restored unless the force of his blows penetrates to the interior. (2) The benefit will in large part be determined, probably, by the temperature at which he stops working the metal. For example, if he works the steel without let up from the incandescent welding heat down to, say, a full orange, the benefit will correspond to the grain size belonging to full orange or to a shade somewhat brighter.

In view of these two principles, the smith must work all over the region where there was high heat and make his blows penetrate; and he must keep all this going, down to a point near full cherry red. The reheating method is undoubtedly better, if for no other reason than that it is easy to make the restorative effects penetrate thoroughly. In fact, the thing to do is to deal with the chain as a whole and not with the individual links.

Proper Heating of Completed Chain

The chain when absolutely cold—or at least not hotter then, say, a black heat—is put into a heating compartment and heated up to the point appropriate to the particular steel in hand. It will be excellent practice to do the latter part of the heating slowly. The object is to get the heat to penetrate to the interior without raising the outside to too high a point.

After the proper temperature has been obtained, and the heat held steady for a time, the work may be left in the furnace and the whole allowed to cool off slowly together. If it is necessary or desirable to take the chain out, or if the weight and bulk of the furnace are not such as to guarantee the chain a slow cooling, the work may be withdrawn and heavily packed in some nonconductor of heat like slaked lime, dry ashes, dry sand, asbestos fiber or the like.

Perhaps the most difficult operation, if the steel happens to be a very soft metal, is to determine when to stop the rise of heat in the reheating procedure. It is not difficult, if the steel contains 0.40 or 0.50 per cent. carbon or some higher percentage, as in such a case the common horseshoe magnet may be used. But chains are often, not to say usually, made of steel containing less than 0.40 or 0.50 per cent. of carbon.

The proper stopping point for these steels is higher than that at which the magnet loses its grip. The less the carbon content, the higher is the stopping point. For steel having zero carbon, the terminal temperature has been given as somewhat above 1652 deg. F. (full orange). This is over 252 deg. above the magnetic point for such steel. For steel having about 0.50 per cent. carbon, the stopping point is somewhat above 1400 deg. (full cherry tending to light red). This is just above the magnetic point. Consequently, we have the rule: For steels varying from 0 to 0.50 per cent. carbon, the temperature which should be attained varies from 1652 to 1400 deg.; intermediate steels have proportionate temperatures just above which the heat should be halted.

As the total variation in temperature is 252 deg. and the total variation in carbon content is 0.50 per cent., for every 0.01 per cent. of carbon less than 0.50 per cent. we add 5 deg. of temperature to 1400 deg. Thus, for 0.20 per cent. carbon steel we have to deal with a carbon content 0.30 per cent. less than 0.50 per cent. As we are to allow 5 deg. of temperature for each 0.01 per cent. carbon less than 0.50, the total temperature change is $30 \times 5 = 150$ deg. The stopping point, accordingly, for 0.20 per cent. carbon steel is in excess of 1550 deg. (light red.) Seger cones or some equivalent may be used to determine the temperatures.

The warning must be given that for low carbon steels it will be best to use the foregoing figures as rough guides. Experimentation with the exact steel you have to work with may be necessary in order to get the best results. Commercial steels vary too much in respect to impurities to permit a total disregard of all experimentation.

Carbonization and Distillation of Peat

The value of peat lies in its distillation rather than its combustion, and on these lines it could supersede wood in the production of acetic acid, methylated spirits of ammonia and tar; the latter being the basis of so many dyes.

In the process of distillation, as peat is a light, bulky material, it requires larger retorts than coal, and of a design which facilitates the transmission of heat from the surface toward the center. Experiments have shown that revolving retorts produce the best results. The apparatus devised and here described is on the principle of the roasting appliances used for coffee, chicory, and so on, but of course with the addition of a receiver for collecting the distilled vapor; the great object being to provide apparatus complete in itself for continuous operation.

This apparatus consists of six cylindrical retorts, each mounted on its own axis and capable of uniform rotation; the individual rotating cylinders are arranged radially about a central pivot, so that the retorts charged with peat can be successively introduced into and withdrawn from a stationary semicircular furnace.

When the apparatus is in operation there are always three retorts in which peat is being distilled in the furnace; the other three being outside—one condensing, another emptying and the third recharging. The distillation takes on an average about 40 min. for retorts holding a ton of peat and making six revolutions per minute.

To enable the gas arising from the carbonized peat to pass out of the retorts, the hollow shaft of each is perforated so as to provide a passage from the inside of the retort to a collecting chamber in the axis of the pivot and thence to the stills for fractional distillation.

The rotary movement of the retorts insures rapid transmission of heat from the furnace to the retorts, and as this heat acts on a large surface, the peat is uniformly carbonized in a short time and at a relatively low temperature.

Coastwise Shipping Conditions in 1918

By G. G. WOLKINS
Boston, Mass.

SYNOPSIS — *Serious shortage of colliers followed by embarrassing surplus. A notable record. Difficulty of keeping ships manned. Problems for 1919. Rates on barge and sail tonnage.*

THE prominent feature of the first half year of 1918 in shipping was the great effort made to provide cargo space to meet New England's coal requirements. For the two months ended Jan. 19, 1918, an average of only 89,600 gross tons per week was loaded at Hampton Roads for New England, and the first three weeks in January it dropped to only 70,000 tons weekly. In the judgment of the trade the need was imperative for not less than 200,000 tons weekly from Hampton Roads and 25,000 tons weekly from Baltimore. The answer was—more ships. Clearly it was the lack of shipping, sold, taken in Government service, or abroad on atractive charters, that was the largest factor in the tense fuel situation that prevailed in January and February.

In March it was agreed by representatives of the Shipping Board and of the Fuel Administration that at that time, in addition to barge transportation, there were steamers available amounting in tons to 238,000 D. W. capacity. To these there was promised an addition in March of 32,575 D. W. tons, making the total 270,575 tons. But beyond this there would be required additional steamer tonnage of 170,500 to move the coal, figuring 27 trips from April to December, at that time estimated as necessary to keep New England going.

By June a lot of progress had been made. Not only were the "Achilles" and the "Ulysses," 12,500-ton Panama Railroad colliers, diverted for the emergency, but new Lake-built steamers of around 3000 tons capacity were added as fast as they could be brought around. Through March, April, May and June the situation had improved to such extent that twenty ships, aggregating 89,700 tons, were withdrawn. Most of them were old-type general cargo boats of neutral registry and were only put into the coastwise coal trade to meet the unusual situation.

During the week ended June 21, eight steamers, amounting to 26,544 tons, were added, so that at that time the steamers in operation, 78 in number, totaled 320,602 tons, to which should be added 16 steamers, or 68,910 tons, then repairing, to make up the aggregate of 389,512 tons in service—94 steamers in all.

The deficit in coal-carrying capacity was therefore being rapidly made up. In July, the week of the 13th, the highest number was reached. Besides twenty steamers, or 55,900 tons, on a contract basis, there were 132 steamers, or 342,000 tons, chartered trip by trip by the Shipping Board to carry coal to New England. To show the extent to which this tonnage was later reduced, because New England was getting jammed with coal, 38 steam colliers were withdrawn between Nov. 27 and Dec. 7. On the latter date but 16 ships, or 44,800 tons, were left that were not operating on a contract basis plus the twenty that were, or but 100,700 tons in all in service. At the end of the year there were steamers tied up in Portland and in Boston because no charters were offering. In one week in September colliers amounting to 90,000 tons were withdrawn for General Pershing's bridge of ships. It all forms a notable record of ebb and flow in tonnage available.

As to rates, there was the same uniformity on steamers taken over and operated by the Shipping Board as in 1917, when colliers above 2500 tons D. W. were commandeered. The rates named in December, 1917—$3 from Hampton Roads and $3.25 from Baltimore—to Boston was in effect until the week ended Apr. 13, when in each case there was an advance of 25c. This remained in force throughout the rest of the year.

The complete story of how the increased cargo space was obtained would make interesting reading, but it is practically inseparable from the same efforts to get coal. Coal and ships were bound up together the first half year, as indeed they were the second, although the process was reversed. The wooden steamers so much talked about early in 1918 had no chance to materialize in the coal trade. By the time any of them could be put into commission it was foreseen the emergency would be over.

Few Losses Due to U-Boat Activities

It was in May the statement was authorized that from then on there would be a steady flow of completed vessels from Lake yards. At one time there were 34 en route from lakes to seaboard. It was to avoid waste of transportation that several of these loaded Provincial coal at Sydney, C. B., a tonnage that was readily absorbed.

Submarine activities slowed up movement for short intervals, but naval intelligence service was good and very little tonnage was lost on that account. Had it not been for the delay in manning and keeping manned the new ships that came, the surplus in August would have been much more pronounced. The loss in efficiency was said to be at least 25 per cent. for this one reason. Steamers that had been counted on for 34 trips were at that time making barely one in three to four weeks. Time was when certain of the colliers made 47 trips a year. The problem of securing crews and keeping them aboard was a serious one all through 1918.

For 1919 there are many kindred problems. What is to be done with the surplus of high-cost ships? It is not possible to compete with foreign shipping under our existing laws. Conferences have been held, but as yet no real progress has been made. Steamship owners feel that shipping should be under private ownership. Are foreign nations to be induced to scale

up wages and other conditions to a level with ours? These are questions for 1919 to answer.

Barge rates to Long Island Sound, New York loading, during the second half year were fairly constant at the rates suggested by the Shipping Board—$1.90 to Providence, $2 to Fall River, $2.15 to New Bedford and $2.50 to Boston, in each case the rate applying only to anchorage.

On July 25 the Cape Cod Canal was taken over by the Railroad Administration under presidential proclamation. The proposal was to deepen to 25 ft. to make the canal available for barges and steamers of the type most in use.

Outside barge freights, Hampton Roads to Boston, for practically the entire year, were 25c. higher than steamer freights. A sailing vessel was chartered in the same trade at $4 in April. The rate on bituminous in Reading barges the second half year was $2.05 from Port Reading, N. J., to Boston points and $2.40 from Philadelphia. The range of freights from New York to eastern Maine points was $4@5. Seldom was there any surplus, so few in number are the craft that 25 years ago used to carry the great bulk of the coal to Maine ports.

Coal Dumpings at Hampton Roads Piers in 1918

Notwithstanding the fact that coal movement was seriously hampered during the past winter by reason of extremely unfavorable weather conditions for the operation of coal piers and harbor craft, the movement of coal for the year 1918—reaching as it did in round figures over seventeen million tons—exceeded the quantity of coal moved during any previous similar period.

The demand for coal of all kinds has been heavy, especially so until the signing of the armistice. The lull which naturally occurred since that time is already changing into greater activity of coal movement. The outlook for Tidewater coal movement is encouraging—especially export business—and the coming year, 1919, should develop a still greater flow of coal through this Tidewater harbor.

COAL HANDLED AT HAMPTON ROADS PIERS DURING 1918

	N. & W. City Pier	N. & W. Lamberts Point	C. & O. Newport News	Virginian
January	20,488	338,842	283,790	235,736
February	25,407	533,876	436,971	329,369
March	23,818	628,737	500,870	379,641
April	25,140	650,511	501,056	365,781
May	26,036	751,486	457,902	422,810
June	23,882	680,670	438,160	392,763
July	25,009	810,891	493,402	402,029
August	19,784	796,743	461,709	377,383
September	20,076	679,342	442,692	403,350
October	24,311	663,177	383,120	316,851
November	20,973	545,696	302,637	323,974
December	.....	396,154	259,728	238,952
Totals	254,894	7,526,165	4,962,037	4,188,664
Grand total 1917				15,828,139
Grand total 1918				17,201,760

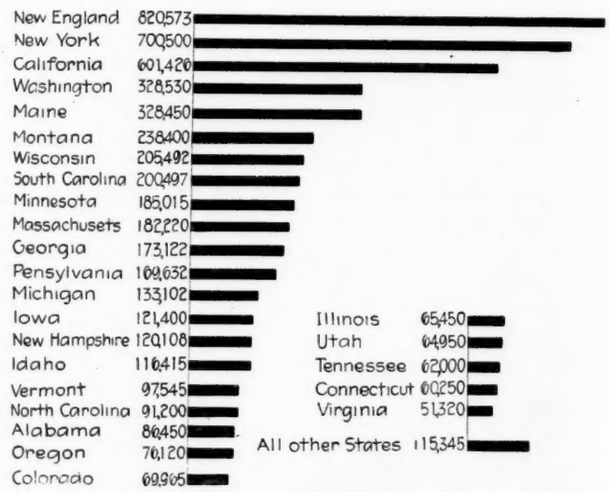
The figure 17,201,760 tons, reached in 1918, sets a high mark for the Hampton Roads piers, being 2,418,819 tons greater than last year and about two millions greater than 1916, which was the banner year for coal handling at the Norfolk and Newport News coal docks.

While it may be true that the great records made during the past year and the two preceding years were a result of war conditions, it is also true that the activity in the coal trade that has been created is obviously bound to remain. With the coming of peace and the renewal of unrestricted trading by merchantmen steamers, the coming year may see an even greater record hung up than during the year 1918.

France, Italy and the other nations of Europe have been for four years suffering keenly from a lack of coal, and before operations can be fully resumed in the mines of Europe all the coal that can be mined and shipped in from the United States will find a market.

Great Increase in Water-Power Development Where Coal Is High in Price

The accompanying chart shows the water-power development of this country up to 1914. Small plants or those generating less than 1000 hp. each are not included. It will be noticed at once that the greatest development has taken place in the Northeast and the extreme western portions of the country; or, in other words, in the regions where coal is necessarily high in price on account of long freight hauls.



WATER-POWER DEVELOPMENT IN UNITED STATES

Many sources of water-power are still undeveloped. The next decade will doubtless see much activity in this direction. The overhead charges on water-power plants are high, and as a rule considerable time is required to build one. When power is wanted quickly, therefore, a steam plant may be constructed with much more dispatch than a hydro-power plant. War time has therefore been unfavorable to the development of water-power. Peace, with its decreased industrial stress and its anticipated lower costs of labor and materials, should tend to stimulate such development.

Campbell states in a report of the United States Geological Survey that the coal reserves of the world, in short tons, are as follows:

Americas, 5,627,823,500,000; Asia, 1,410,487,600,000; Europe, 864,412,600,000; Oceania, 187,842,900,000; Africa, 63,755,900,000; a total of 8,154,322,500,000 net tons. The United States has 4,205,154,000,000 net tons, or over half the total of the world reserves.

High Lights in the Coal Trade During the War Period

By ALEX MOSS
Editorial Staff, *Coal Age*

TO FAITHFULLY chronicle the happenings in the coal industry during the war period would be a task of no mean proportions, and it is not the intention of the writer to enter into the subject *ad exhaustum*. To do so would result in a volume that would compare favorably in size with "Webster's Unabridged." The milestones, as it were, that marked the road traveled by the coal industry while the nation was at war will be indicated, though the vast extent of ground lying beween, must, in the interests of space and the reader's patience, be left untouched for some more earnest and conscientious historian.

ON APR. 6, 1917, the United States entered the world war. Soon after we shelved the Monroe Doctrine and war industries began to get under way, a shortage of bituminous coal made itself evident. Anthracite was already scarce, though a true knowledge of the importance of this situation was confined to the trade. In spite of the fact, however, that stocks of soft coal in the hands of dealers and consumers were not large, there was little attempt being made at this time to accumulate reserves. The trade situation was somewhat confusing, there being a decided tendency of both buyers and sellers to await developments. Everybody was marking time and expecting some more definite assurance as to the future.

In official Washington it was early recognized that fuel was the very heart of the nation's life; and that in order to meet the greatly augmented domestic and industrial requirements, and to avoid the pitfalls into which France and Great Britain had fallen soon after the outbreak of the war, it was necessary to utilize or to create some force that would exert a sort of centralized control over the coal industry. This belief that the regulation of production and distribution of coal would serve as an excellent war measure found outcome in the formation in May, 1917, of a Fuel Board, with Francis S. Peabody as chairman. Mr. Peabody was a practical coal man and had gained recognition as an able organizer.

Fuel Board Settles Down to Business

Soon after the formation of the board a number of plans were set afoot looking toward the stabilizing of coal prices, the collecting of production statistics, and the efficient transporting and distributing of coal. The Fuel Board acted as a sort of clearing house, the members of the board being kept busy digesting and collating the vast mass of information needed to successfully work out the tremendous problems of the fuel situation. In June, 1917, labor was given representation on the board, and the way was thereby smoothed for more efficient coöperation between that body and the mine workers of the country.

Keenly desirous of efficiently handling the coal situation, the Federal Trade Commission, through the Fuel Board, made several rather startling recommendations—startling because no such drastic prescriptions were expected. In essence, the most important of these recommendations were as follows:

First, a pooling arrangement, which was to be placed in the hands of a Government agency, to control the production and distribution of coal and coke. The producers of the various grades of fuel were to be paid their full cost of production plus a uniform profit per ton (with due allowance for quality of product and efficiency of service).

Second, the transportation agencies of the United States, both rail and water, were to be similarly pooled and operated on Government account, under direction of the President, and all such means were to be operated as a unit. The owning corporations were to be paid a just and fair compensation, which would cover normal net profit, upkeep and betterments.

Reduced Current Prices of Soft Coal

In the latter part of June, 1917, after conferences had been held with the operators, the Fuel Board (now known as the Committee on Coal Production) made sweeping reductions in the current prices of bituminous coal. This was a revolutionary procedure, and, like other measures meant for the public good, it was received with much abuse.

Early in the conferences referred to above, it was realized that a national organization of coal operators would be necessary to make the price-fixing and other plans of the Government readily operable. To this end was formed a tentative organization composed of the twenty-five secretaries of coal-trade associations who were present at the sessions. C. P. White, of Cleveland, was chosen chairman and C. E. Lesher, of the U. S. Geological Survey, was made secretary. The association was to work in conjunction with Mr. Peabody's committee and was to be supported by an assessment, not to exceed ¼ mill per ton, to be levied on all operating coal companies in the United States.

In the meantime, the consumption of fuel was expanding to unprecedented proportions. Anthracite was still short (this condition proved chronic), though recourse to the culm banks resulted in quite large tonnages being sent to market.

Aug. 1, 1917, saw the tidewater pooling arrangement, suggested by the Committee on Coal Production, in full operation. All shippers of tidewater bituminous coal had agreed to pool their output at the ports of New York, Philadelphia, Baltimore and Hampton Roads, and time has proved that the benefits expected to be derived from this arrangement have been more than realized. This plan, too, came in for a bit of healthy criticism, many in the industry pointing out that there were obstacles that could not be surmounted, such as proper classification, just remuneration for carefully prepared coal, and matters of a kindred nature.

The maximum prices that had been announced by the Committee on Coal Production brought forth some acrid remarks from Secretary of War Baker, who characterized the new figures as "exorbitant, unjust and oppressive." But in spite of the disagreement between Government officials, the prices fixed were closely observed by the operators. True, all the available output was covered by contract, or some form of tentative agreement, but there was only a minimum business being negotiated under the Government's figures.

However, the prices of the Committee on Coal Production were short-lived, for on Aug. 21, 1917, President Wilson took the matter of price-fixing into his own hands and prescribed provisional prices to cover all the coal-producing districts in the country. The new figures were one-third lower than those agreed upon voluntarily by the operators with Mr. Peabody. The statement announcing the new prices divulged the information that they were based upon the actual cost of production and were deemed to be not only fair and just, but liberal as well. Provision was made for a reconsideration "when the whole method of administering the fuel supplies of the country shall have been satisfactorily organized and put into operation."

The market reacted to this new phase of the coal situation by "playing 'possum." All the coal operators in the United States were called upon by the Board of Directors of the National Association of Coal Operators to meet Aug. 29 at Pittsburgh, to discuss the latest pronunciamento.

Following upon the heels of the President's announcement fixing bituminous prices, came the setting of prices for anthracite, the specification of jobbers' margins—and the naming of a coal administrator. In a brief fifty-word statement the President made public the fact that in accordance with an act of Congress approved Aug. 10, 1917, he had appointed Harry A. Garfield, president of Williams College, as his fully empowered representative to carry out the provisions with regard to the control of fuel.

Relief Felt at Dr. Garfield's Appointment

For some days previous to the issuance of this pronouncement, it had been known in official circles that the President had declined to name a board of three to exercise control over the coal industry, and that a dictator was to be named. The name of the man most likely to be selected for the post was well guarded by the President, although Mr. Garfield's name did enter into the speculation a few days prior to his appointment. It may be said with all truthfulness that great relief was felt when Dr. Garfield's appointment was announced, as some had feared the selection of a man with less balance and more radical tendencies.

The new schedule of prices had no effect whatever on anthracite, though it threw the bituminous market into chaos. Practically all soft coal disappeared from the market, and delegations from all parts of the country rushed to Washington in an endeavor to get the prices on bituminous coal increased. Dealers who had purchased stocks of coal at prices considerably above the latest Government figures were in a quandary, for to dispose of their supply at the new prices would mean that many of them would suffer a considerable financial loss.

On Sept. 8, 1917, Dr. Garfield made public his plans for controlling retail prices by the formation of local fuel administrators in every coal-consuming section of the country. Shortly after this, intimations came from Washington that the President's provisional prices for bituminous coal would be increased, as in effect the original schedule had tended to decrease production.

In the fall of 1917 the publicity department of the Fuel Administration began to warm up to its work, and soon every man, woman and child who could read the newspapers knew that there was going to be a fuel shortage. Economy was preached to both domestic and industrial consumers, and industries that were not essential to the winning of the war began to get apprehensive as to their coal supply.

On Sept. 30, 1917, Dr. Garfield issued an order describing the method by which retail coal and coke dealers were to fix their maximum margin of profit. The order became effective the next day and authorized retail dealers to charge 30 per cent. above their 1915 margins.

Demands for Coal Exceeded Supply

All through the fall the demand for both anthracite and bituminous coal kept considerably ahead of the supply, and many sections of the country were in dire straits for want of soft coal. The price of bituminous had been increased 45c. on Oct. 27, the advance being made to cover the increases in the miners' wage scale that had gone into effect.

By December, 1917, it was palpably evident to those in the coal industry that the Fuel Administration would brook no interference with its plans. The personnel of the administration had been growing since its inception, and some of the best executive brains in the country had responded to Dr. Garfield's call and were giving a million dollars' worth of service for a dollar a year.

With the arrival of cold weather and the unprecedented temperatures that prevailed during the winter of 1917-18, came more urgent demands for coal from all classes of consumers. New England in particular was in a sorry plight, and large cities such as New York could get no hard coal to warm the homes. The tremendous amount of tonnage which the railroads were called upon to handle congested the yards and terminals, and overtaxed the motive power facilities so that it became impossible for the roads to handle expeditiously the most vital necessities. Embargo followed embargo, and preferential shipment orders for this and that helped to further muddle the transportation situation.

It can readily be perceived that the railroad congestion did not help fuel matters any. In fact, Dr. Garfield went on record as saying that the question of an adequate or inadequate coal production depended in large measure upon how soon the transportation difficulties were overcome. Every operation reported a shortage of cars, and though the clamor for relief was loud and long, no one seemed to know just what steps to take to ameliorate this condition.

So the fuel problem was tackled from another angle—that of conservation. Estimates made by the fuel authorities had determined that the country was be-

hind over fifty million net tons of bituminous coal. As there seemed to be little likelihood of output ever catching up with demand, reliance was placed in securing less waste of coal in large plants and in cutting down unnecessary uses of power. What the conservation department of the Fuel Administration accomplished in the next few months proved a revelation. And, if the country gained nothing else during Dr. Garfield's regime, it could still point with pride and profit to the lessons learned by industry in the elimination of waste brought about by improper firing methods, faulty boiler-room installations and other chronic fuel-wasting conditions.

As a climax to Dr. Garfield's statement that the railroads were chiefly responsible for the deplorable coal situation came the news that the Government had taken over the railroads. This astounding information was announced by the President in a proclamation issued on the night of Dec. 26, 1917.

The ushering in of 1918 found the country in the grip of an intense cold. The production and distribution of coal were proceeding as rapidly as transportation facilities would permit, though not anywhere near fast enough to satisfy the demand. The various local fuel administrations, boards and committees were perfecting their organizations, and the efforts to relieve congestion on the railroads were beginning to bear fruit in the shape of a slight improvement in the car supply at the mines.

"Workless Monday" Order in Effect

On Jan. 16, 1918, came the now famous Garfield order shutting down business for five days and closing up industries on every Monday until Mar. 25. The storm aroused by this latest announcement was far more tempestuous than any that had greeted other revolutionary edicts of the Fuel Administrator. Nobody had received any advance notice of the order, and following its publication the Senate of the United States permitted itself to reach a degree of excitement that could show few precedents. The political side of the situation received a thorough ventilation on the floor of the Senate, and only 19 votes were cast against a resolution introduced by Senator Hitchcock requesting a five-day suspension of the order to allow those opposing it to be heard. Nevertheless the order was obeyed with a promptness that clearly portrayed the temper of the American people.

February, 1918, brought a cold wave that greatly interfered with railroad transportation and served to negative much of the good work that had been accomplish up to that time. Throughout the New England States the fuel situation was still acute, both as regards domestic and industrial consumers. From many sections came reports of plants that were forced to shut down for lack of fuel, while many other concerns were enabled to keep running on a hand-to-mouth basis through special shipments of fuel by the local fuel administrators.

On Feb. 13 the order providing for heatless and workless Mondays was suspended. Though it was admitted that little coal had been saved by the order, it was generally acknowledged that it helped considerably to relieve the freight congestion.

Warmer weather during February brought a generally better feeling, which was reflected in a let-up in the urgent demand for domestic fuel. There was still a great scarcity of steam grades, and cities in the interior of the country were in a bad way for coal, principally anthracite.

Along in March the country began to stop worrying about its immediate coal needs and started to lay plans for future requirements. Even the situation in New England showed signs of improvement. Much of the freight congestion had been cleared away by this time, though the bituminous operators still complained bitterly of a car shortage that hampered their efforts at increasing production.

With the drawing near of the new coal year, operators, jobbers, dealers and the consuming public relaxed from the tension of a nerve-racking winter and turned their eyes toward Washington, whence had come whisperings of new plans for prices, zoning, car supply, diversion of shipments and so forth.

Anthracite Coal Situation Unimproved

The demand for coal continued to exceed the supply in virtually all grades. A slight betterment was evident in the production of bituminous coal, owing to an improvement in the placing of cars at the mines. Anthracite, however, continued to be scarce, and there was no reason for believing that this condition would change.

After months of work, the Fuel Administrator on Mar. 22 announced a zoning plan for the distribution of coal. This was to go into effect Apr. 1. Every state in the Union was more or less affected by the plan. The basic idea underlying the new move was to confine Eastern coal to Eastern markets and make it compulsory for the Middle West, as well as other sections, to use coal produced in near-by mines. The announcement was received by the industry with commingled feelings. Many operators and shippers who had been years in building up trade connections suddenly found their customers taken from them. Consumers who had been accustomed to burning certain qualities or grades of coal were forced to use fuels with which they were less familiar. *Mais, c'est la guerre,* and producers and consumers alike readjusted their old methods of doing business to conform to the new order of things.

The trade was still further convinced that the Fuel Administration had control of the entire coal output, from the time it left the mines till it reached the consumer's bin, and even the furnace, when Dr. Garfield on Apr. 1 announced that all coal jobbers would have to procure a license in order to continue in business. Many abuses had crept into existence which the Government desired to eliminate, and the licensing plan, stated Dr. Garfield, would be fair to the operator, fair to the bona fide jobber, and fair to the consumer. The new system was somewhat of an innovation, for it enabled the retailer, for the first time, to buy at his option of the producer or the jobber.

By the beginning of the new coal year the Fuel Administration had made rapid progress in the task of clearing the path for a quick movement of coal from mine to consumer. New prices had been announced, the local fuel administrations had perfected their organization to take care of distribution—but there was no coal. No improvement could be reported from the

bituminous mines. In many producing districts the car supply was still below normal, and not sufficient motive power was available on the railroads to clear the yards promptly enough to insure the regular movement of cars. The trade at this time was somewhat uncertain, owing to the fact that the making of contracts for the new year was confounded by Government commandeering and preferential shipment orders.

During April the output of hard coal began to increase, though the operators had to contend with a shortage of labor that grew more serious as the months went by. Bituminous coal output, on the contrary (it always is "on the contrary" when hard and soft coal conditions are compared), continued to be disappointing. The railroads had shown no improvement in the manner in which empty coal cars were allotted, and John Skelton Williams, who was in charge of purchases for the railroads, insisted on the right of the roads to distribute cars where and how they pleased. There was an ulterior motive behind this attitude, which was to use such control of shipping facilities as the railroads possessed for the purpose of forcing price concessions from the coal producers. Thus was the public confronted by the amazing spectacle of one branch of the Government setting at naught the edicts and rulings of another Government body. This action on the part of the Railroad Administration served as did nothing else to bring to the support of Dr. Garfield many of the operators who had hitherto been inimical to him.

Better Feeling with Warm Weather

With the sunny skies and warmer weather of May came a feeling of optimism. Recognizing the truism that the public is prone to forget what it had suffered in the past, the fuel authorities began to urge consumers to lay in their coal supply during the summer months, and not to wait until winter was again upon them. The production of both anthracite and bituminous coal was steadily increasing in the meantime, though inadequate car supply still hampered a maximum output of the latter.

A reduction of 10c. per ton in the mine price of bituminous coal on May 25, and an order that all consumers were to pay the same price for fuel, settled the long-standing controversy between the fuel and railroad administrations. Immediately following this order the railroads began to take a large tonnage of coal.

Industries deemed unessential to the winning of the war were being denied the use of any kind of coal when June arrived, while dealers in anthracite were unable to fill even the two-thirds requirements of all their domestic customers.

Gradually the truth was borne in upon interested parties that the coal industry was being organized as it never was organized before. Many there were who believed that the production and distribution of the nation's entire coal output could not be systematized, but the Fuel Administration staff, under Dr. Garfield, was accomplishing the seemingly impossible. Weekly reports made to the Fuel Administrator kept him conversant with the actual output and consumption of coal in each zone, and in this way a watch was maintained on the needs of each section. In many instances where the occasion manifested itself, coal was shifted in transit to take care of emergency cases. Quotas had been fixed for those cities that were permitted to burn anthracite, and none of this grade of fuel was to be sent west of the Mississippi or south of the Potomac or Ohio rivers.

During all the foregoing period bituminous coal had been in such urgent demand that much of it got to market as it never got to market before. Some of the fuel was good, far too great a quantity was bad, and a whole lot of it was indifferent. To correct this evil, and to insure that the consumer who paid for coal would get what he paid for, Dr. Garfield on June 1 made public new regulations that imposed heavy penalties on operators who persisted in shipping dirty coal. To enforce these regulations inspectors were appointed for the different bituminous-producing sections.

Attempt Made to Speed Up Production

It became evident at about this time that one of the things essential to a solution of the bituminous coal problem was to speed up production. Having established this fact, Dr. Garfield formed a new section of the Fuel Administration, to be known as the Production Bureau, and placed the difficult task of stimulating the soft-coal miners to greater endeavors in the hands of James B. Neale, who had been acting as his advisor.

July found the coal industry hard and fast in the grip of Governmental regulation and administration. The competitive features that had distinguished the coal market in previous years were conspicuous by their absence, and one said it all, in referring to trade conditions, when he stated that "Demands for all kinds of coal are urgent, with stocks inadequate." The railroads and the fuel authorities were working together shoulder to shoulder, and the bituminous mines were producing record tonnages. Many of the larger operators at this time were shipping their entire output to the lakes, but because of the late opening of navigation shipments to the Northwest were behind schedule.

During the month of July record outputs of soft coal were made in many districts. But so rapidly did demands increase, that the manner in which industry was literally swallowing the nation's production of bituminous coal was being viewed with consternation by the Federal Fuel Administration. Every week that passed brought a new or additional requirement that had not been foreseen, and therefore not included in preceding estimates. For instance, a call for coal to be used in France and another to take care of an English obligation in Chile were typical of the latest types of demand of which no previous calculation had been made.

Naturally, the production and conservation divisions of the Fuel Administration were exerting their utmost efforts to help stem the overwhelming tide of demands. Car supply at the mines was good, in some few cases equaling or even exceeding requirements, and a shortage of labor began to manifest itself in the soft-coal regions.

In August the Department of Labor classified coal mining as war work, and efforts were made to keep the mining forces from leaving their tasks for other war industries such as munitions plants and shipyards, where higher wages prevailed than in the mining districts. Throughout the West and Middle West produc-

tion was well up to the demand, and reports began to circulate that certain grades and sizes of Indiana and Illinois coal were being sold below the Government maximum. In the East, however, particularly along the Atlantic seaboard, demand for all grades of coal was strong and dealers were unable to accumulate any stocks, except of the smaller sizes of anthracite. The movement of coal to the lakes was heavy, though receipts at the upper lake docks were still behind the schedule. Every effort was being made to keep shipments to the Northwest by water at a maximum, as only in this way could that region be taken care of by the close of navigation.

The intense heat during the middle of August exerted an influence more or less potent upon the production and distribution of coal. Reports at this time, however, failed to reveal any shortage of coal for immediate needs. Some regions had been able to accumulate surplus stocks in fair volume, while others were unable to build up any reserves whatever.

The condition of the country, so far as concerns coal, on Aug. 20 was about as follows: That portion of the country lying roughly between the Rocky and Allegheny Mountains appeared to be fairly well supplied with fuel, though Michigan was complaining of a shortage of domestic coal. A scarcity of coal seemed to be most pronounced along either coast. New England, while admitting that coal was coming forward in adequate volume for immediate needs, nevertheless was still apprehensive as to the future. On the Pacific Coast industries were somewhat short of coal; and although little anxiety was felt, it was anticipated that wood and other fuels would have to be used during the winter.

Opinion Divided as to Future

By the middle of September conjectures as to the outcome of the fuel situation were many, but only one gifted with infiinite knowledge could prophesy at that time, with any degree of accuracy, how the country would fare during the approaching winter. Optimists pointed out that the storage rules prescribing the quantity of coal that could be kept in reserve by industries in certain sections, the modifications of zone restrictions, the large stocks in the hands of consumers, and the improved car supply at the mines were all happy auguries. Pessimists shook their heads sadly as they compared the weekly tonnage figures with the estimated requirements, and heaved a heartfelt sigh at the news of labor troubles at the mines. They argued that the consistent preaching and enforcing of conservation measures were certain indications of a stressful winter.

A strike in the anthracite region during September caused quite a drop in output. The hard-coal miners, after maintaining an enviable record for patriotism and production, struck for higher wages in the face of an existing contract and the country's needs, and many collieries were forced to suspend. In many towns hundreds and thousands of orders for hard coal were on the dealers' files, and it was believed that there would be a duplication of the suffering of the preceding winter if cold weather were experienced.

In the meantime every red-blooded American was being thrilled with the accounts of the heroic exploits of our boys across the sea. The Fuel Administration had placed the question of whether the miners would back up the achievements of our forces with an increased production of coal squarely up to the workers themselves; it was either plenty of American coal or the loss of American lives.

The coming of colder weather in October witnessed an urgent demand for fuel from household consumers, an influenza epidemic from which the country was suffering causing the starting of fires in homes much earlier than usual. The stove and chestnut sizes of anthracite were in strong demand, though an outstanding feature of the market at this time was the collapse in the demand for the steam sizes of hard coal, several collieries being reported as about to close down for lack of orders.

Fuel Administration Justifies Itself

By the middle of October even the most carping critic was forced to admit that the Fuel Administration had amply justified its reason for being. In control of all production and distribution facilities, the administration had brought to fruition the many plans which it had formulated early in the year for safeguarding the nation's fuel supply. In the face of apparently insurmountable obstacles and scathing sarcasm from many quarters Dr. Garfield and his assistant had labored steadily until chaos had given way to order. New England and a number of other important industrial centers had ample reserve stocks of fuel against the uncertainties of winter mining and shipping conditions, the exact reverse of what was true in the fall of 1917. The Northwest, too, had been amply taken care of, and it was a foregone conclusion that the lake shipments would meet the schedule.

And then came peace talk and influenza to trouble the coal-mining industry. Premature reports of the surrender of Germany led many mine workers, among millions of others, to throw down their tools and enter into an orgy of celebration, with the result that the coal output was reduced. More serious, however, during the latter part of October was the havoc being wrought by the influenza epidemic, particularly in the hard-coal regions.

The belief was strong in late October that there would be no serious shortage of bituminous coal during the winter of 1918-19. The needs of essential industries were being supplied as they became evident, and even nonessential industries were being permitted to accumulate reserve stocks under a new order issued by the Fuel Administration. Anthracite coal still continued to present a problem, though the prevalence of warm weather kept consumption down. Furthermore, there was every reason for believing that the bins of domestic consumers were stocked with coal as never before.

With the urgent need for quantity production of soft coal now somewhat ameliorated, the Fuel Administration again began to turn its attention to quality. During the week ended Oct. 28 orders were issued to a number of soft-coal mines prohibiting them from mining or shipping their product, as it was of an inferior quality. This made a total of 99 mines closed since the Fuel Administration inaugurated its campaign for clean coal.

Early in November a surplus of soft coal was reported from practically all mines west of Pittsburgh, this

unusual condition being attributable largely to the possibility of an early sure-enough peace, and partly to the exceptionally mild weather prevailing throughout the country. Developments in the war situation changed with such rapidity that manufacturers of war goods stopped buying coal, as it was evident that if Germany accepted the terms of the Allies' armistice, war work would cease.

Then the expected happened, though much sooner than had been looked for. On Nov. 11, 1918, about 19 months after our entry into the conflict, the world war came to an end. Demand for soft coal was cut off as with a knife. Immediately consumers discovered that they had a large oversupply of coal on hand, and mines that only a short time before were hard put to it to meet their production quota found that they were unable to dispose of their output. Bituminous coal of the lower grades became a drug on the market, and bituminous operators one after the other were forced to a realization that for the present their days of prosperity were over. What the story would be in the future, when the country readjusted itself to a peace basis, was open to conjecture. But one thing was evident. Until industry again began to go full steam, the bituminous mines would have to mark time.

Efficient Storage of Explosives

By C. Atwood
Tamaqua, Penn.

The watchword of "efficiency" has taken a sweeping hold on the people of the country during the past two years. Greater efficiency was planned for manufacturing plants, was put into play on the farms, entered the homes of our people and found its way into the mines. As a result enormous amounts of coal were poured forth from the shafts each day. There was, however, a place in some mines where efficiency was neglected, and that was where the high explosives were stored.

Moist storage conditions work a great deal of damage to powder and for this reason the best of drainage possible about a magazine should prevail at all times—everything should be done to keep excessive moisture from the magazine. Some magazines are so poorly arranged in regard to drainage that after a rainstorm great pools of water can be seen standing on the floor about the cases of dynamite. Even though the water does not come in contact with the boxes of explosives (though oftentimes it does), the water evaporates and makes the air humid. When repeated two or three times the humidity becomes so excessive as to cause the powder to become soft and mushy in the cartridges. Where the cases of dynamite stand in puddles of water for any length of time, some of the ingredients may possibly be dissolved out. While dynamite in any of the above-mentioned conditions may shoot, it is almost certain that it has lost some of its efficiency and may cause misfires. Misfires are expensive and also dangerous, and should be carefully guarded against wherever possible; even if the dynamite detonates, it is quite possible that it may have lost some of its strength by the dissolving out of some of its ingredients. It may also give off obnoxious fumes for the same reason.

Excessively hot storage may also cause trouble with powder. Of course not many mines are afflicted with this fault, but yet there are some which are, and it is just as much a fault as a damp magazine. Continued heat in time has a tendency to make a powder unstable and it also causes it to leak and get soft and mushy, as when it is stored in damp places. It is well known that permissible powders contain enough moisture in them in some form or another to cool the flame and thereby make the powder safe in dusty or gaseous mines. A hot magazine tends to dry out this moisture, and this may reduce the safety of the explosives if they are kept in heated storage for a long time. Some types of dynamite after being kept in a hot magazine get very hard when they are taken out to a place where the temperature is cooler, so hard in some cases that it is difficult to insert a cap in them. Should this difficulty appear, it can be easily overcome by rolling the cartridge by hand on a flat wooden surface until the powder becomes soft. After this the cap can be inserted easily.

One of the worst types of magazine is the one that is damp, hot and has poor ventilation. Here we have a heated, humid atmosphere, and with poor ventilation there is no means of changing the air. This warm, moist air, held in contact with the powder for days at a time, readily dissolves out ingredients from the dynamite due to the increased solubility of salts with an increase of temperature. With this condition we have a damaged powder whose properties are not the same as when it was received at the mines. In other words, we have a powder which has been lowered in efficiency and will not do the work that it would have done when it first reached the mine.

One of the common faults of magazines is cold storage. It is difficult to say whether this is a worse fault than a damp or hot magazine. But it certainly is a serious one, and one that it would pay to remedy. Of course, an extremely cold magazine means frozen dynamite, and frozen dynamite is treacherous. Before it can be used it has to be thawed, and because of careless methods used by some miners thawing is dangerous; the liability to accidents is great. At times, when a miner is in a hurry, the stick may be only partly thawed and still have frozen spots in it. Frozen powder is more sensitive than unfrozen, and frozen spots throughout a partly thawed stick may cause trouble. It may be set off by friction on the side of the hole or by a metal tamper; friction caused by breaking the powder in the place where it is frozen may be enough to start a detonation. Partly thawed powder may cause a misfire or only a partial detonation. All of the above-mentioned results from a partly thawed cartridge are serious and should be watched carefully. A powder that is much chilled and yet not frozen is cut down in efficiency; it lowers the sensitiveness of the explosive and it also lowers its brisance; that is, it cuts down its shattering power.

It can easily be seen that efficient storage is a matter that should be observed much more carefully around mines. Better powder, greater production and more safety for the miner are obtained. In order to procure this, magazines should be kept dry and at a normal temperature (between 60 or 70 deg. F.), and in this manner a greater good will come to all, miners and mine owners alike.

Modern Tipple Equipped with a Simple Balanced Horizontal Screen

By FRANK J. SCHRAEDER
Chicago, Ill.

SYNOPSIS—*A small wooden tipple of large capacity is here described. The screens are double-decked, horizontal, with opposed and balanced movement. This balancing permits the supporting frame to be of comparatively light and inexpensive construction.*

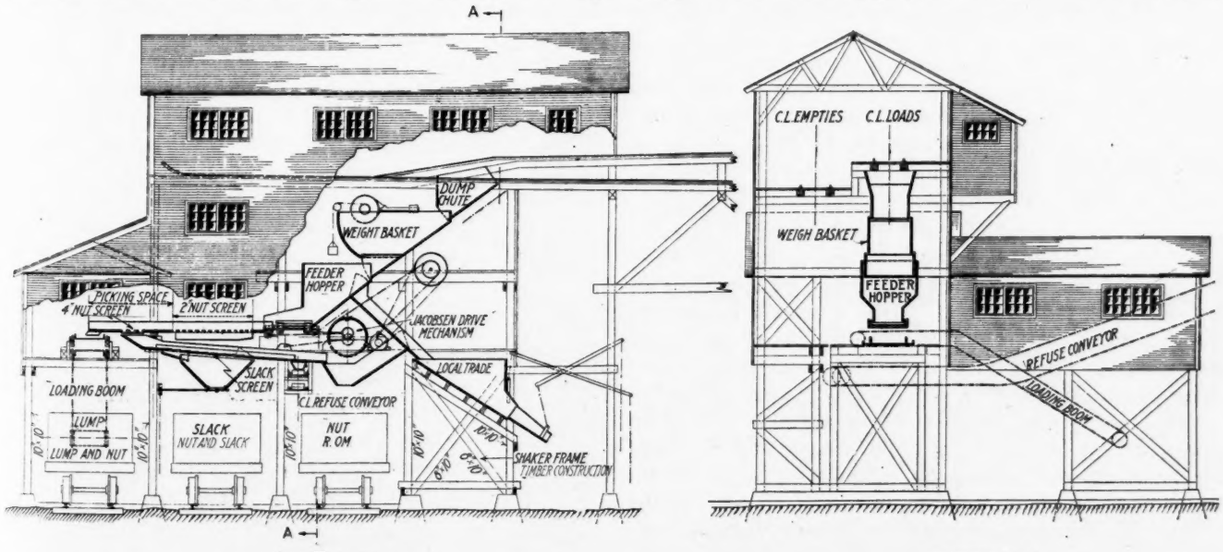
DURING the last two years almost anything that was black sold as coal, and under the emergency there was a ready market for it. However, almost immediately upon acceptance by Germany of the armistice terms, the demand for clean, well-sized coal increased, so that today many operators are interested in and planning for the installation of a simple equipment for the preparation of their output.

Some operators foresaw this and equipped their mines to meet the new conditions arising after the war. Among these, the Van Kirk-Carroll Coal Co. has recently put into operation a new tipple for its mine at Dellroy, Ohio. The equipment there installed is considered the simplest modern tipple machinery for screening, picking and loading coal.

The equipment and its arrangement are indeed remarkably simple. There is comparatively little machinery and less equipment than has heretofore been required for the work and results afforded. Nothing has been sacrificed in the way of advantages, but instead the efficiency in screening has increased and the number of mechanical units has been decreased. For illustration, a single drive with a single motor actuates the self-cleaning reciprocating feeder, the combined screen and picking table, and refuse conveyor.

In the Dellroy tipple shown in the accompanying illustrations, coal is brought to the tipple in trips of 10 to 15 cars each. These are passed over a Phillips crossover dump and discharged into a weigh basket especially designed to receive the coal without breakage. After weighing, the coal is carefully passed from the weigh basket into the feeder hopper. Both basket and hopper are large enough to hold two mine cars full of coal, in order to facilitate quick dumping. From the feeder hopper the coal is conveyed at a uniform rate of 100 to 150 tons per hour to a pair of Jacobsen balanced horizontal shaker screens, which are 4 ft. wide, and arranged for loading on three tracks.

The screens consist of one upper deck, adapted to convey the coal forward toward the lump track, and a lower deck, adapted to convey the coal and refuse pickings in the opposite direction. The two screens travel in opposite directions at identical speeds, and being of the same weight, their reactions are theoretically completely counteracted, thereby eliminating the necessity of heavy, reinforced concrete supports or any heavy structure. In this particular case only a simple wooden frame was employed to support the drive.

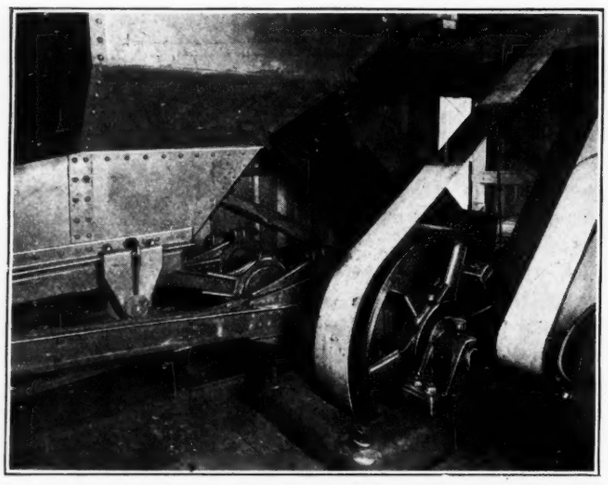


SECTIONAL ELEVATION SECTION A-A

SECTIONAL ELEVATIONS OF THE DELLROY TIPPLE OF THE VAN KIRK-CARROLL COAL CO.

The upper screen is provided at the receiving end with 8 ft. of 2-in. circular perforations and at the delivery end with a short section of 4-in. perforations; the intermediate part of the trough is provided with blank plates over which the 2-in. lump, which has been relieved of slack after passing over the 2-in. perforations, is conveyed in a thin, uniform layer. This makes each piece of refuse clearly visible, so that picking may be performed directly on this upper screen without the installation of a separate picking table. The coal, after having been picked, passes over the 4-in. perforations,

the over-size being conveyed over the end of the screen and delivered without breakage to an apron type of loading boom. The 2-in. to 4-in. nut passing through the 4-in. perforations to the lower screen joins with the 2-in. slack and passes over 10 ft. of lip screen. The slack passing through the lip screen is delivered to a gate-



DRIVING MECHANISM FOR DOUBLE DECKED SCREEN

controlled hopper, whence it is discharged to the railroad car, while the nut coal is conveyed further and discharged over a chute to the nut track.

The refuse and pickings are deposited into two narrow troughs, there being one on each side of the lower deck. These refuse troughs are fastened direct to the lower screen and therefore receive the same conveying action without any additional machinery. Thus the refuse is separately conveyed in these side troughs and delivered to a scraper conveyor which carries it to a 50-ton refuse bin, where the sulphur and refuse are separated and from which they are loaded by gravity into railroad cars for shipment. This simple arrangement for conveying refuse on the side troughs of the lower screen will be appreciated, since this arrangement eliminates a refuse conveyor and its driving machinery.

The lump loading boom is 42 in. wide, of the apron conveyor type, driven by a 7½-hp. motor, and arranged for lowering and raising by means of a worm-driven winch operated directly by the drive machinery of the boom. Clutches are provided for raising and lowering the hinged section and for stopping the boom independently. These clutches are operated and controlled by rope from the trimmer's platform.

The driving head for imparting the reciprocating motion to the screens is known as the No. 4 Jacobsen driving mechanism and consists of one continuous drive shaft on which are oppositely mounted two pairs of ordinary eccentrics, each pair operating one section of the screen. A uniformly rotating power-driven differential flywheel pulley imparts to the shaft a motion which is slow at first and then gradually accelerated toward the end of the forward stroke, then quickly reversed and retarded toward the end of the return stroke. This motion insures a continuous uniform travel of the coal at a suitable speed for screening and picking. A separate eccentric centrally mounted on the same drive shaft operates the reciprocating feeder and imparts to it the same irregular reciprocatory conveying motion which makes the feeder self-cleaning. Thus the cost, installation and maintenance of an independent feeder drive shaft with its bearings, supports and pulley is saved. This arrangement has the advantages afforded both by the apron type feeder and the old-style reciprocating feeder, while it possesses none of their inherent disadvantages.

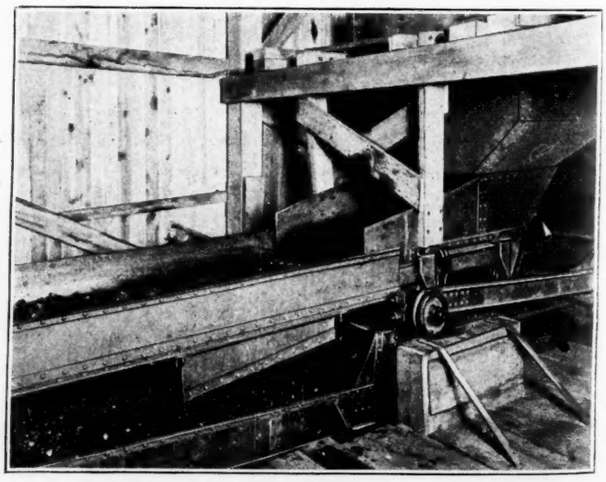
A 25-hp. motor is employed for driving the screens which grade the coal and convey the refuse. The power actually consumed runs from 10 to 20 hp., varying with the load on the screens.

The feeder hopper is provided with a gate for by-passing run-of-mine coal directly to the railroad car without having to operate any of the shaker screen equipment. The coal may also be by-passed directly into the local-trade bin, which is arranged with gates and hinged chutes for loading wagons on the public road that passes under the tipple.

Picked run-of-mine may also be loaded by opening a gate near the discharge end of the upper screen and by-passing the material to the lower screen, where it may unite with the nut and slack and be loaded through a gate in the lip screen into a car on the slack track. By manipulating gates in the screen, any combination of sizes may readily be had on the three tracks.

Briefly summed up, the advantages of this type of equipment are: The balanced horizontal screen maintains its horizontal position at all periods in its cycle of operation, and conveys the coal over the screen at a speed such that picking facilities are afforded directly on the screen itself without the installation and maintenance of any separate picking tables and structure for them.

This is a balanced screen and requires no unusual supports or heavy concrete pier for foundation; the upper deck counteracts the reaction of the lower deck, both being driven from the same mechanism and from oppositely disposed eccentrics cast in one piece, so that,



VIEW OF BOTH DECKS OF THE SCREEN

theoretically, the reactions are neutralized within the castings without even passing to the shaft.

The reciprocating feeder is actuated from the screen-driving mechanism shaft and requires no separate drive shaft, bearings, transmission machinery or supports. In addition, this reciprocating feeder has the same peculiar conveying action as that of the screens, and is therefore self-cleaning.

All of the machinery and equipment is kept near the ground; thus the dumping point is lower. This means a lower structure and in shaft tipples a shorter hoist and an increased tonnage.

The tipple structure is simple and therefore costs less money than would be required for any other type of tipple equipment for the same purpose.

Provision is made for conveying refuse pickings either forward on a trough above the upper screen or backward on side troughs integral with the lower screen, which has a backward or reverse conveying action from that of the upper screen.

The reverse conveying of the lower screen permits wide flexibility in combining the various sizes; picked lump can be taken back for combination and loading with other sizes.

The cost of the machinery and equipment is comparatively low and the simplicity affords ready installation in existing or new structures.

The complete tipple equipment described in the foregoing was designed and installed by Jacobsen & Schraeder, Inc., engineers, Marquette Building, Chicago, Ill. The Van Kirk-Carroll Coal Co. is now installing similar equipment at its other mines.

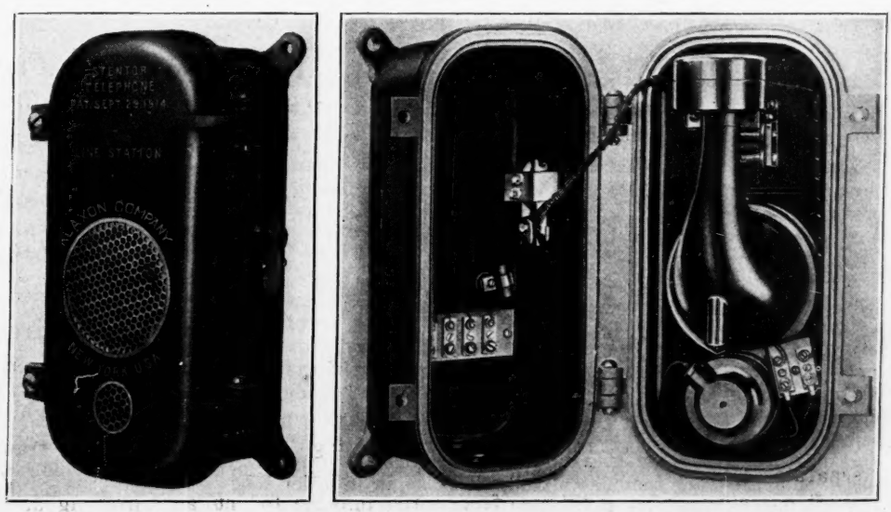
New Telephone Admirably Adapted for Use in Mines

The Klaxon Co., of New York, will shortly place upon the mine market what it calls its Stentor telephone. This instrument has been developed primarily for use on battleships, where conditions of service are decidedly severe and the intercommunication system must be equal to any and all emergencies. Thus developed, the instrument is admirably adapted to use in mines.

The Stentor instrument differs radically in construction and results from the ordinary telephone even of mine type. As may be seen in the accompanying illustration, it is entirely devoid of both external receiver and transmitter. While these elements are of course present, they are attached to the inner surface of the box cover and might thus be rightly termed internal, in contradistinction to the external parts of the ordinary instrument. The distinguishing characteristic of this device, however, lies in the volume and distinctness of the sound transmitted. The diaphragm of this instrument is mounted between rubber cushions, or gaskets, with the result that the sound transmitted is extremely distinct and penetrating. Under favorable conditions a person may stand 5 to 20 ft. away from the instrument and yet hear and be heard with ease.

The construction of this instrument is heavy and rugged. The case is of a special brass or bronze composition, which is of course rust and corrosion resisting. The hinged cover bears upon a rubber gasket and is fastened to the instrument box by means of cap screws. The working parts are thus effectually sealed weather, water and gas tight. All exposed parts are either of bronze composition or are copper plated. So thorough is this protection from injury by the elements that the instrument may be entirely immersed without deterioration. What this may mean in case of a mine flood will be readily appreciated.

These instruments may be connected to each other or to a central station in the same manner as the ordinary telephone. Its small size, reliability, ease of operation (the lever at the side is merely pressed in order to call central or signal another station) and loud, distinct tone are factors that should be decidedly in its favor for mine installation.



VIEWS OF THE STENTOR TELEPHONE, SHOWING MECHANICAL DETAILS

Nitro-Starch as an Explosive

Nitro-starch, which in some of its properties is superior to nitro-cellulose (guncotton) and nitro-glycerine, seemed at one time likely to establish itself as a useful explosive, but, as formerly manufactured, it was wanting in stability. Perhaps its constitution was not fully understood. War requirements directed attention to this compound, and a safe explosive was produced from tapioca-starch. Tapioca-starch has long been used in large quantities by the Post Office Department for the gum of postage stamps. The need for this substance in the form of an explosive led to a search for a substitute. This was soon discovered and after rapid but intense research it was found that nitro-starch possessing the required stability can be made from corn-starch, the product being better in quality and cheaper than that obtained from tapioca.—*Chemical and Metallurgical Engineering.*

Coal Age Index for Last Half of 1918 Ready in February

An index to *Coal Age* for the last half of 1918 will be ready for distribution some time in February, and will be sent free to anyone addressing a request to the subscription department of *Coal Age*, New York City.

Statistical Program of Fuel Administration May Be Abridged

Apparently the Secretary of the Interior is not convinced that the coal industry is entitled to a continuance of the broad statistical program being conducted by the Fuel Administration. If Secretary Lane so desires, this statistical work can be continued in his department until July 1 on money already appropriated to the Fuel Administration. If the program is continued after July 1, it will be necessary to secure an additional appropriation.

Congress, however, is inclined to view with favor the expenditure of money for statistics, because it supplies consumers and the smaller operators and dealers with most valuable trade information which they would not be able to collect for themselves. On the other hand, the more highly organized concerns have an advantage in the absence of Government statistics, from the fact that they are able to support statistical divisions of their own and are enabled thereby to have more insight into the general situation. This argument, as a rule, is effective with the appropriations committees.

The statistics, which are being gathered by the Fuel Administration, cover the details of production, distribution, consumption and stocks.

Improvement of Ohio and Mississippi Rivers Will Benefit Kentucky Coal Industry

That the improvement of the Ohio and the Mississippi Rivers is of importance to the Kentucky coal industry is indicated by the statements made by C. F. Richardson, the president of the West Kentucky Coal Co., in a letter to Representative Barkley. The letter reads:

You no doubt are familiar with the recent rivers and harbors bill, there not being any appropriation made for the improvement of the Ohio River other than the unexpended appropriations which have been tied up under contract for the Ohio River improvement.

The improvements on the Ohio River are of vital importance to all of the people who live on the Ohio and adjacent to it, and inasmuch as about one-sixth of the population of the whole United States live in the Ohio and Mississippi Valleys it seems to me that the benefits that these citizens can derive from having the Ohio and Mississippi Rivers made navigable continuously during the year are such that our representatives in Congress should not overlook the importance of making the necessary appropriations to complete the great work that has already been begun in order that the public may have the benefit of these great waterways.

The West Kentucky Coal Co. is especially interested in the improvement of the lower Ohio as well as the Mississippi River, but more especially in the lower Ohio. Under ordinary conditions we transport half a million tons of coal down the Ohio River from our mines located near Caseyville, Ky., and on account of the present river condition we are only permitted to operate approximately seven months in the year, and these operating months are contingent on the flood stages of the water. With the proper improvements we could have continuous operation and could transport one and a half million tons of coal with the same equipment that we now have, and I am sadly disappointed that no appropriation was made in this session of Congress to take care of the necessary improvements on the lower Ohio.

With the present high labor cost on railroads, as well as the congestion of the railroads at various periods of the year, it makes it more necessary that improved river transportation should receive the necessary attention. In periods of car shortage, as well as other transportation facilities, if the Ohio and Mississippi Rivers were put in the condition in which they can be put at a nominal cost, then the citizens living along these two great rivers could be served not only with coal but with various other commodities which have been most difficult for them to get transported to the towns and cities bordering these two rivers; and with these increased transportation facilities better car supply, as well as motive power, could be diverted to other localities where they would be needed.

I earnestly request that you use every effort in your power to see that something is done at the next session of Congress, and if possible at the present session, to have the necessary appropriations made for a continuance of the improvements of the lower Ohio River and not have it delayed for two or three generations to come. This country is in need of this improvement, and it should be given immediate attention; and if the necessary appropriations are made, it would help solve the great question of what are we going to do to find work for the returning soldiers.

Coal and Coke Fuel Administration Cancels Requisition Orders

All orders for the requisition of coal or coke, whether they are now outstanding or issued prior to the present time, have been cancelled and annulled, to take effect on Jan. 31, it was announced Jan. 23 by the United States Fuel Administration.

Permits Required for Certain Smokeless Coal Shipments

To correct a slight misconception of its order of Jan. 16, regarding the removal of restrictions on shipments of bituminous coal and smokeless coal by way of the docks on Lake Michigan and Lake Superior, the United States Fuel Administration pointed out on Jan.

21 that this order still keeps in effect a provision that: "Low-volatile smokeless coal shall not be sold or shipped from docks on Lake Michigan and Lake Superior for use by domestic consumers unless a permit for such sale or shipment shall first have been obtained from the District Representative of the United States Fuel Administration in charge of said docks."

The order also declared valid all permits heretofore or hereafter obtained from the District Representative in charge of said docks, under the proviso of the order of Jan. 2, 1919, although granted without the approval of the Federal Fuel Administrator.

Record Custodian for United States Fuel Administration

Harold B. Harris was appointed on Jan. 21 Custodian of Records of the United States Fuel Administration. Mr. Harris has been a member of the Bureau of State Organizations of the Fuel Administration and has had charge of retail prices. By the terms of the order, issued on Jan. 21, he has "authority to make such arrangements as shall be necessary and proper for the custody, safe-keeping and disposition of all records and documents of the United States Fuel Administration."

Question of Railroad Fuel Interesting the Coal Industry

Railroad fuel has furnished the matter of liveliest interest in Washington during the past week. The statement of policy with regard to the purchase of railroad fuel, made recently by the Director General of Railroads, is highly satisfactory to such representatives of the coal industry as are in Washington, but it is felt that the statement does not go far enough. If the employment situation is kept secure, it is realized that railroad fuel purchases must be made in such a manner as to make fairly equitable distribution of contracts within the various fields. If the tonnage is not spread out well between the different districts and within each district, irregularities in employment are certain to arise.

In such negotiations as have been had with Director General Hines, he has shown an unmistakable disposition to be fair and broadminded, his callers testify unanimously. They have hoped that he will make a definite trial of some systematic distribution of orders.

The plan of the Railroad Administration to ask for bids on coal is a departure from past methods which is being watched with interest. Some operators have suggested to the Railroad Administration that there be a fixed price established for Government coal. The industrial situation is such that it is practically certain that the Government, as a large purchaser of raw materials, will take that situation into account.

In order to protect themselves from an influx of high-grade coal, when the zones are abandoned, retailers in certain cities where there are stocks of low-grade fuel still on hand are entering into an agreement not to bring in any high-grade coal until the surplus of low-grade coal is disposed of.

Mining Institute To Hold Joint Meeting with Canadian and Electrical Institutes

The American Institute of Mining Engineers will meet on Feb. 17 to 20 with headquarters at the Engineering Societies Building, 29 West 39th St., New York City. Joint sessions will be held with the Canadian Mining Institute and the American Institute of Electrical Engineers. The program is as follows:

Monday, Feb. 17—Registration at Institute Headquarters, 9 a.m. to 9 p.m.; Simultaneous Sessions of "Institute of Metals Division" and "Industrial Organization," 10 a.m.; Luncheon at Headquarters, 12:30 p.m.; Simultaneous Sessions of "Institute of Metals Division" and "Industrial Organization," 2 a.m. to 5 p.m.; Visit to Morgan Galleries, 3 p.m.; Evening entertainment, 8:30 p.m.

Tuesday, Feb. 18, Canadian Mining Institute Day—Annual Business Meeting, 9:30 a.m.; Simultaneous Sessions on "Principles of Taxation" and on "Iron and Steel," 10 a.m.; Meeting of the Women's Auxiliary, 11 a.m.; Meeting of Boards of Directors, 12 m.; Luncheon at Headquarters, 12:30 p.m.; Discussion of International Coöperation in Mining in North America; Improved Relations of Capital and Labor; Uniform Mining Law for North America, 2:30 p.m. to 5 p.m.; Visit to Metropolitan Museum of Art and Senator Clark's galleries, 3 p.m.; Smoker, 8:30 p.m.

Wednesday, Feb. 19—Session of National Council, 10 a.m.; Session on Mining, Milling and Geology, 10 a.m.; Meeting of Women's Auxiliary, 11 a.m.; Luncheon at Headquarters, 12:30 p.m.; Matinee for Ladies, 2:30 p.m.; Joint Session with American Institute of Electrical Engineers on Electric Welding, 2:30 p.m. to 5 p.m.; President's Reception, 6:30 p.m.; Annual Banquet followed by Dancing, 7:30 p.m.

Thursday, Feb. 20—All-day trip to Newark Bay to visit Federal Shipyard, where the first electrically welded ship is being built. A ship launching will add to the interest.

The Coal and Coke Committee will present the following papers: "Anthracite Mine Costs," by R. V. Norris; "Work of National Production Committee, United States Fuel Administration," by J. B. Neale, and "Distribution of Coal under United States Fuel Administration," by J. D. A. Morrow.

The Industrial Organization Committee will conduct discussions on housing and Americanization. It lists the following addresses: "Prevention of Illness Among Employees in Mines," by A. V. Lanza; "Professional Section—United States Employment Service," by I. W. Litchfield. "Use of Cripples in Industry," by J. P. Monroe; "Need for Vocational Schools in Mining Communities," by J. C. Wright; "Employment of Mine Labor," by H. M. Wilson; "Psychology Tests," by R. M. Yerkes; "Mental Factors in Industrial Organization," by T. T. Read.

Giving Credit Where Credit Is Due

In some unaccountable manner the Wyoming Coal Co., in Wyoming District No. 2 (see *Coal Age*, Jan. 16, page 96) was credited with a coal production of 430,099 tons. The tonnage is correct, but the coal was produced by the Monarch Coal Mining Co. instead of the Wyoming Coal Company.

THE LABOR SITUATION

EDITED BY R. DAWSON HALL

General Labor Review

It has been recently announced, to be exact the date was Jan. 22, that the general disbandment of the United States Fuel Administration would not affect the Bureau of Labor which works under the Administration. It will continue its labors till the end of the war. Under an agreement published July 23, 1918, all labor questions pertaining to the coal-mining industry were placed definitely under the jurisdiction of the Fuel Administrator, this arrangement having the sanction of the Secretary of Labor and of the United Mine Workers of America. The agreement included the provision that any dispute failing of settlement between the parties at interest must be submitted to the Fuel Administration for final disposition without stoppage of work.

ALL MUST GET AT LEAST PRESENT AVERAGE WAGE

In the anthracite region a strike has broken out at the Heidelberg No. 1 and No. 2 Collieries of the Lehigh Valley Coal Co., at Dupont. The men went on strike Jan. 18 and on Jan. 24 were reported as still out. About 500 men are involved. A meeting has been held at which representatives of both the men and the company were present. The controversy arises from a desire to fix a minimum day's wage to average $6.63 per day. The company will not agree to it, of course. Dupont has always been a center of trouble and contract breaking.

It is interesting to compare the wages of anthracite mine workers with those of skilled workers in the city who have far higher living costs than the mine workers and where especially rent and coal are much higher than in the mining regions. According to the figures of the Fuel Administration the contract miner receives $6.63 daily or $39.78 a week. That is what the Heidelberg miners would make the minimum wage. The following is a list of the wages received by other workers, by the day and by the week:

	Daily	Weekly
Consideration miner...	$5.50	$33.00
Contract laborer	$3.70- 5.16	$22.20- 30.96
Company miner	4.56- 4.80	27.36- 28.80
Inside laborer	4.08- 4.32	24.48- 25.92
Common laborer	3.36- 3.68	20.16- 22.08
Shaft engineer	4.88- 5.20	29.28- 31.20
Fireman	3.84- 4.24	22.24- 25.44
Blacksmith	4.56- 4.80	27.36- 28.80
Carpenter	4.56- 4.80	27.36- 28.80
Machinery repairer....	4.40- 4.56	26.40- 27.36

THUS DOES SCRANTON "PUT IT OVER" CHICAGO

The United States Department of Labor issues the following statistics for full-time wages in Chicago, May 15, 1918. These, understand, are union scales:

Bricklayers, cement finishers, elevator constructors, marble setters, painters, stone masons, tile layers, granite cutters and iron molders, $33 weekly; asbestos workers, carpenters, sheet metal workers, structural iron workers and finishers, each $31.20 weekly; slate and tile roofers, $31.90 weekly; all-around machinists, $31.20 weekly; metal polishers, $26.88 weekly; building laborers, cement laborers, elevator helpers, hod-carriers, $22 weekly; machinery helpers, $18.24 weekly.

When it is considered that living costs are considerably higher in metropolitan cities, the mine-workers living in communities of smaller populations have more leeway for the worth of a dollar, as its purchasing powers go further.

The coal miners of the Nesquehoning region are declaring defiantly that if the country goes dry they will not mine coal. They allege that stimulants are absolutely necessary if they are to do such heavy work, and they say that if they are deprived of the beer, on which their strength depends, they will seek employment less hazardous and more conducive to health. Where they will find an employment more conducive to health cannot be imagined. Lots of work, it is true, is less hazardous, but the work on which they are engaged will become decreasingly hazardous when their nerves and their judgments are not unsteadied by alcohol. The story that beer is necessary for the hard worker is one of the prize fables of the brewery storyteller.

In central Pennsylvania much friction has arisen at the Winber plants of the Berwind White Coal Mining Co. and as a result the Winber Citizens' Association has been formed, the merchants of the town forming the background of the body created to attack the policies of the company. The Winber citizens, who are all either employees of the corporation or derive their whole trade and living from those who are the company's employees, allege that their meetings are watched, and the employees of the corporation who attend the meetings are "fired" the next day.

The mine workers complain that the company has been quite active in municipal politics and has been discharging all men whom they believe have voted against such officials of the company as were seeking municipal preferment. They claim not only that the company discharges those actively opposing it but also blacklists them when they seek employment elsewhere. An appeal has been made to the United States Secretary of Labor for an investigation of the conditions alleged by the mine workers.

ILLINOIS MINERS WANT MORE COMPENSATION

Illinois miners think that workmen's compensation legislation should be changed from time to time in keeping with fluctuations in wages and increases in the cost of living. Local No. 304, United Mine Workers, of Belleville, Ill., has adopted a resolution asking the Illinois legislature, now in session, to increase the rate of compensation to injured persons. They say that the rates now in effect are based on wages and the cost of living prior to 1916 and therefore do not meet the exigencies of the present situation. The same resolution is to be adopted by miners' locals all over the State and forwarded to Springfield to be presented to the legislature.

Walter Nesbit of Belleville, secretary-treasurer of the Illinois mine workers, has made an appeal to the legislature for the relief of the suffering existing among the miners of the state as a result of the influenza epidemic. He states that 740 miners died from influenza or pneumonia, leaving dependent families and parents, and that a majority of these families have been left without support.

Operators Want Present Wage Scale Upheld Till Cost of Living Drops

The Winding Gulf Operators' Association at its last meeting passed resolutions favoring the establishment of a miners' state hospital in the Winding Gulf region, calling for certain changes in the compensation law (*Coal Age*, Vol. XV, p. 152), advocating an increase in the salaries of the chief of the Department of Mines and the district inspectors, and urging a continuance of the present scale of wages:

"Resolved, That it is the sense of this meeting of the Winding Gulf Operators' Association that our field has reached a state of development and attained a population which makes it very desirable and necessary that a state hospital be established, and that this hospital should be so located as to be convenient to the greater number of operations in the field, and that a committee be appointed by the chairman to see that this matter is properly presented to the Legislature at this session by our local representatives.

"Resolved, That there are some changes necessary in the present Compensation Law in order to enable the Commissioner of Compensation to make a more liberal distribution of the funds at his disposal; that this association is in favor of these changes being made; and, it is the sense of this meeting that any changes contemplated in the present Compensation Law should include a provision requiring the State Compensation Commissioner to make a complete detailed quarterly financial report to be published in the newspapers throughout the state.

"Resolved, That the chief of the Department of Mines and the district mine inspectors fill positions which carry responsibilities for which they should be more adequately compensated. That we are in favor of the chief of the Department of Mines receiving a salary of $5000 per annum, plus expenses, and the district mine inspectors receiving salaries of $3600 per annum, plus expenses, and that the appropriations for paying these salaries be made as heretofore has been done.

"Resolved, That in view of the continued high cost of living the Winding Gulf Operators' Association is in favor of the present scale of wages and desires to maintain same as long as market conditions permit."

New Wage Scale in West Virginia

The operators and mine workers of West Virginia will meet in the next few weeks to open their conferences relative to the wage scale for the year beginning Apr. 1, for at that time the present scale agreement expires. The conference will find many miners in West Virginia, not out of work exactly but not suffered to work regularly because of the curtailed demand. However, if a resolution of the Winding Gulf Operators' Association may be accepted as showing the attitude of operators, they will not seize upon the shortage of orders as a reason for forcing down wages. Until an agreement is reached as to next year's scale of wages, labor conditions will be more or less unsettled.

It seems as if the West Virginia operators were proposing to do their duty by operators in other states, for they are not seeking a wage reduction though it would be somewhat profitable as they, if successful, would secure it first. It would be unfortunate if the West Virginia district were to attempt to attain such a temporary advantage. Reductions in wages would be peculiarly regrettable at this time, for all such revisions downward would suggest other changes in the same direction but in greater measure. As a result business would begin to doubt whether it was resting on rock bottom or on a snow ledge over a fathomless abyss.

A scale convention for the Winding Gulf field met at Beckley on Jan. 23 for the purpose of formulating the miners' demands for the new scale year.

While mines are being operated irregularly, there does not appear to be much shifting about from plant to plant, even though some companies are more in need of men than others. This is regarded as a healthy sign.

Let Who Will Make Laws for the Operator Mine Workers Will Make Their Own

For several months the coal miners of the Crowsnest field have been working single-shift. This concession was granted during the strike of last September. All the parties concerned arrived at an understanding under which a Royal Commission was to be appointed immediately, which commission was to make inquiry into charges that the mines of the district were unsafe to life while operated on the basis of two shifts in 24 hours.

It now appears that the men, satisfied with present conditions, do not propose appointing a representative to the commission, a course which, it was understood, they were to take, the personnel to be completed by appointees of the Crow's Nest Pass Coal Co. and of the Minister of Mines. What course will be adopted as a result of this announcement is difficult to say, but it seems certain that the company will not be content to allow the situation to remain unchanged, for the officials of the corporation feel that the working of two shifts does not reduce the safety of the workings and that the continuance of the single shaft materially lowers the output and lessens the returns to be derived from the operation of the property.

The following resolution was adopted at a recent meeting of the Gladstone local union of Fernie, B. C.:

"Order 26 decreed that the miners at Coal Creek and Michel resume work on single shift for an indefinite period pending the report of a Royal Commission. As we have been actuated in taking our position solely from our desire for the greater safety of the mines, we have viewed with great concern the probabilities that such a commission, composed as it will be of men of lesser efficiency or repute in the mining world, would take ill-advised action.

"We, the members of the Gladstone local union, protest that we did not seek or request, either individually or collectively, that the expert judgment of G. S. Rice, of the United States Bureau of Mines, be sought in this matter, though we recognize that he is the authority of highest repute on the American continent. The evidence on which he based his report was furnished exclusively by the Crow's Nest Pass Coal Co. and the Department of Mines. We complain that we were not informed of the conditions at the No. 3 mine which led to the disastrous explosion at that colliery. Yet the Department of Mines had already on file G. S. Rice's report regarding those conditions, which report clearly shows that the flash point should be reduced from 5.5 to 2.5 in those mines.

"Since the above-mentioned disaster men have been withdrawn from their places in the mine when the cap on the lamp is ¼ in. high or higher, whereas before that time withdrawal was required only when a ½ in. or higher cap was exhibited. This shows that the Department of Mines must have some faith in the Rice report on which we based our argument.

"All commissions that have been appointed to settle disputes between capital and labor have invariably been unsatisfactory to labor. For these several reasons we, the members of Gladstone Local Union, No. 2314, United Mine Workers of America, absolutely refuse to take any part whatever in the aforementioned commission."

Ohio Miners Couple Steady Work with Government Ownership

That part of the United Mine Workers centered in Ohio, at the annual convention held in Columbus recently, adopted resolutions favoring Government ownership and the steady operation of all coal mines. The delegates voiced the opinion that only under Government ownership could the miners get full justice as to wage and working conditions. A resolution was also adopted asking for legislation increasing the maximum weekly compensation for injury and disability. The convention urged that pay be made weekly.

The housing and the sanitary conditions of the various coal-mining villages was given as the cause of the high percentage of fatalities occurring during the recent influenza epidemic. The Ohio legislature was asked to remedy that condition by the enactment of more stringent sanitary regulations.

It was forecast that a special "international" meeting of miners would be called immediately after the signing of peace, when the entire question of a new wage scale will be discussed. Under the agreement with the Federal Government the present scale is to continue during the war. It is believed that higher wages and better working conditions will be demanded.

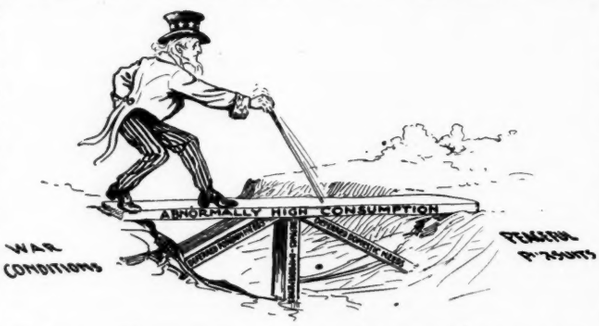
The working mine employees in the Yorkshire mines, England, numbering some 150,000 men, on Jan. 22, decided to quit work in order to enforce an extra 20-min. lunch time, 40,000 men having already been locked out for attempting to put the new lunch hour into effective operation. Sir Guy Calthorp, the Coal Controller, conceded the "snap" demanded and work continued. The mine workers were even threatening to bring out all enginemen, firemen and boilermen. A desire to reduce output and compel the employment of both returned soldiers and the persons who replaced them during the war was probably the cause for the demand.

EDITORIALS

The Dangers Are All in Our Fears

FOR THE nonce Uncle Sam is like a man who steps out on a plank bridge and wonders if it is likely to break, and how far it would be if he fell. There won't be much work done for a while if he continues to suspect the strong plank under him, though it is a safe wager that it would hold up a dozen such men as he.

There are big prospects ahead here and some abroad. To begin with, the United States furnishes enough work for all its citizens whenever those citizens go briskly about their business relying on the prosperity of the country. When they go feeling around in doubt and fear, there is not enough work here or in any country. Whenever there are silly people busily assuring their neighbors that profits and wages must both be largely curtailed, of course no one will buy. These men are the enemies of the country, perhaps greater enemies than the pacifists and pro-Germans. They create the idleness that breaks the cohesion and morale of the nation. They proclaim when they preach lower prices or lower wages that there must be a revolution against the employing class or the working class, or both.



If it were true that a great modification in prices is at hand, it would be hard for any of us to refrain from prophesying it; and if it has to come, we might wish it to come early. But it does not have to come. If we don't sit up, wait for it and fuss over it, it won't come. There is nothing particularly disconcerting about the present high wages, if indeed we can call them high wages, for in most cases they do not represent an excess of purchasing power.

Since the Middle Ages (when an English two-cent penny a day was a good day's hire in England) to the present day (when 250 of those same pennies is considered hardly enough to keep an average family in health) there has been a steady rise in the actual and nominal wage of employees. The actual wage has risen partly because machinery, efficiency and steady employment have increased production and partly because the decline of flunkeyism and the cessation of certain kinds of waste have prevented the drain on capital which reduced the quantity of available production.

The nominal wage has increased even more, and that specious change in the rate of pay has come from industrial exigencies and from the importunity of labor unions. Some unions have been actuated by the vain and foolish hope that wage increases could be conceded without causing an equivalent rise in the cost of living. Others, better weighing economic causes and effects, have been animated by the immoral expectation that by getting wage rises first the other wage earners who did not get an increase in wage would be obliged to pay tribute to those who did.

But the point to be made clear is that in, say, 500 or 600 years wages have multiplied, in part nominally and in part actually, 250 times, mostly during wars. What reason is there to believe that a doubling of wage during the present struggle is a tide which must have a regression. History shows that the wage increase during a war is inevitable, and that the readjustment after the war does not bring the scale back to its original level. History also records that the high wage does nobody any harm except the gold-mine corporations, the holders of bonds, the hoarders of money, insured and pensioned persons. With all due respect to these people, we wish to see everything move along regardless of them and their wishes. None of them would gain by such a restriction of business as would readjust the face values of wages and profits to their former level. Such a setting back in wage would involve a cataclysm of such magnitude that it would render their securities of little value.

The world can go on working with the higher wages as well as it did with the lower wages. If wages were again doubled, no great harm would be done to most of us, and there would be no appreciable benefit to any one but the borrowers of money and the payers of pensions and industrial compensation. Unfortunately, everybody assumes that the condition of high wages is so irretrievably bad that it must be corrected sooner or later—and why wait till later? The situation is not bad at all, only our reaction to it. Let us see the matter in the right way and there will be an end to the seriousness of the problem.

Conditions are favorable to more than normal prosperity. Before the war people were being fast educated to desire more commodities than ever before. Automobiles, plumbing fixtures, good homes, artistic house furnishings, traveling facilities—all were in unusually large demand before we entered the conflict.

Patriotic people, despite the growth of the desire for the good things of life, suddenly cut off the purchasing of all articles for which there was no great necessity. For some months, if not for some years, they endured hard conditions so that the war might be won. Their tastes have not been changed; their ambitions are not reduced; they are ready to buy again in large volume. Now that the war is over they are free to express their desires in purchases. Business is sure to be brisk, and being brisk, it will be profitable.

As for export business it must be good—for a while at least. Europe wants so much of what we can supply. For a few years Europe will be willing to borrow and we to lend, and so long as that condition lasts exports will be fair. Of that there is no doubt. Even if there is not much coal in what is sent to Europe, what matter? A man at Kokomo, Ind., is just as desirable a customer as one at St. Etienne, France. Why worry? This country is big, and its demands are large. Whether only a ton, ten million or one hundred million tons of coal a year go to Europe is no matter so long as our market here is good. And good it will be as soon as Uncle Sam quits looking at his plank, throws his head up and jauntily swings across the gully.

Great Britain says: "I can produce more than my people can consume. I must export my surplus." France puts the same into Parisian, with a shrug, and the Italian repeats the sentiment in his language with an appropriate gesture. We are all saying the same thing. We are all going to export a surplus. That surplus is the yellow dog that all must shoo from the door. There is no place for him unless it be an international dog pound, and the pound has not yet been established. For the most part we, in the United States, must look to our own people to take our staples. There is a good steady market abroad for our mechanical devices and our machinery, but some staples which have been home stayers in the past may have to be truly patriotic and stay in the U. S. A., and be at home to welcome other staples that Europe will send to pay for our manufactured articles, our copper and our loans. But there is an endless demand if the old gentleman will quit feeling about so tremulously with his cane. The bridge is strong. Reconstruction is not needed. All we need is resumption and, as we learned years ago, the way to resumption is to resume.

Opportunity for Export of American Coal

ENGLAND is short of coal. Her needs, so far as fuel is concerned, are as great now as at any period during the war. No reserve stocks of coal have been accumulated, and until these reserves have been built up for transport, domestic, industrial and public utility purposes, Britain must resort to rationing.

In the South Wales district coal production has decreased to an abnormal extent. Furthermore, the South Wales Miners Federation is making a determined effort to secure a six-hour work day. If the miners succeed in carrying the measure through, the annual coal output of the United Kingdom will as a result decline several millions of tons.

Italy is so urgently in need of coal that she is seeking to control its purchase and distribution so that fuel may be more plentiful and more equitably apportioned. For this reason, the Italian government desires a complete monopoly in the sale of coal within her own borders. France and Belgium, unable to procure enough coal from their ally, Great Britain, are looking to Germany for their necessary supply, and expect to set off its purchase price against the indemnities and compensations demanded of the German people.

All this is of particular significance to the American producer of bituminous coal. The soft-coal mines, owing to pressure of war demands during the war period, demonstrated their ability to produce millions of tons of coal above normal requirements. Having expanded their capacity to such an unprecedented extent, these mines must now either curtail production or find an outlet for the surplus tonnage. The former plan is a most unsatisfactory solution of the problem; the latter plan can be adopted if certain changes are brought about in American shipping conditions.

Right now is the psychological moment for the building up of a large South American export trade in United States coal. England, for some time to come, will be unable to take care of her European fuel obligations let alone look after her South American business. Given enough cheap bottoms to compete with vessels from South Wales and Australia, which have been supplying the bulk of South America's coal needs, there is no reason why the United States could not capture the Latin American markets.

To further the interests of coal operators who are desirous of entering foreign markets, *Coal Age* with this issue has inaugurated a new department to be headed "Foreign Markets and Export News." Under this head will appear items and information having a direct bearing on the subject of coal export, such as foreign market conditions, ocean shipping rates, opportunities in outside markets, coal-export statistics and so on. *Coal Age* would like to see this department grow and become of real value to the industry. To this end the coöperation of its readers is solicited. Correspondence is invited on the subject of coal exports, which promises to become one of ever-increasing importance to American coal producers.

Hunt a Culprit to Excuse Themselves

THE mine workers in Ohio are trying to blame the coal operators for the disastrous plague of influenza. An epidemic occurs and carries off a million or so of people, and the Ohio mine workers try to put the burden of the offense, as far as it concerns themselves, on insanitary housing and unhygienic conditions.

Most of the towns in the mining districts of Ohio are old. The greater part of them doubtless reflect the ideas of the close of the century just passed. They are probably none too sanitary. A commission of examination might conceivably do no harm. Typhoid and malaria are only too common in many mining towns, and it is quite likely that the Ohio coal towns have their share of the first, at least.

But influenza is spread solely by disregard of certain conventions, and so far as we know not at all by lack of sanitation, using that word in a broad community sense. The disease of influenza can best be kept from spreading by personal isolation. Every person should have his own washing and eating utensils. In fact the precautions that should be taken are almost innumerable. A careful man, who has learned to dread contact with other persons, will take them instinctively. A careless man will oppose them all—and will blame the landlord for the results.

It is said that a campaign for sanitation is proposed by the unions. Well and good, but let them remember that as Jerusalem was kept clean by every man sweeping his own doorstep, so will the mining towns be sanitary if every householder tries to abate his own nuisances.

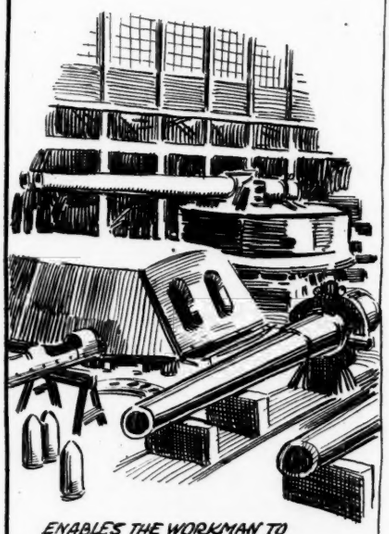
Peace How The Miner Is The Good Friend Of His Fellow Workman Both In Peace And In War War

FURNISHES THE WORKMAN WITH FUEL FOR HIS STOVE

FUELS THE TRANSPORTS TO CARRY THE BOYS ACROSS THE SEA

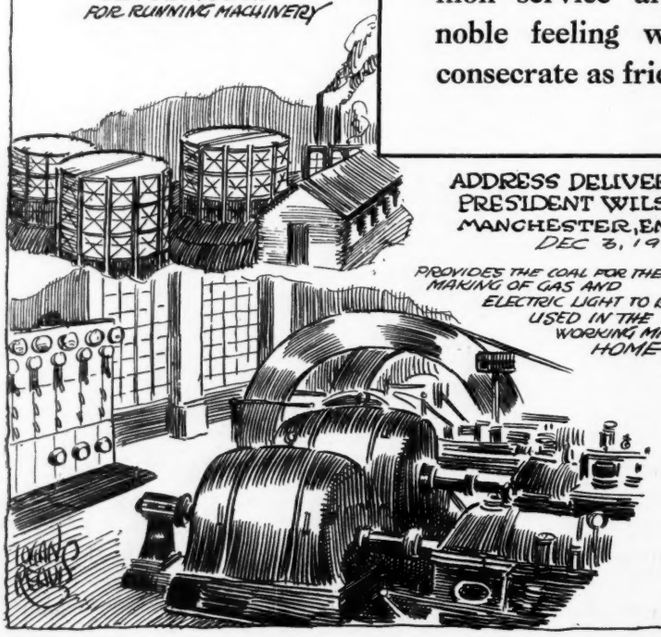
FRIENDSHIP is not a mere sentiment. Patriotism is not a mere sentiment. It is based upon a principle, upon the principle that leads a man to give more than he demands. Similarly, friendship is based not merely upon affection, but upon common service. The man is not your friend who is not willing to serve you and you are not his friend unless you are willing to serve him. And out of that impulse of common interest and desire of common service arises that noble feeling which we consecrate as friendship.

SUPPLIES POWER FOR RUNNING MACHINERY



ENABLES THE WORKMAN TO MAKE SHELLS, TANKS AND GUNS FOR HIS DEFENSE.

ADDRESS DELIVERED BY PRESIDENT WILSON AT MANCHESTER, ENGLAND DEC 3, 1918



PROVIDES THE COAL FOR THE MAKING OF GAS AND ELECTRIC LIGHT TO BE USED IN THE WORKING MAN'S HOME

DELIVERS TO THE ILLUMINATING GAS PLANT THE COAL OUT OF WHICH TNT IS MADE.

DISCUSSION BY READERS

Traffic with Germany

Letter No. 1—The editorial that appeared in *Coal Age*, Nov. 14, p. 910, entitled "Shall We Traffic with Germany?" was read with much thought and deep interest. The article draws attention to the fact that, in order to enable Germany to pay her great debt that she has incurred in the prosecution of the war, we must both accept of her labor and buy the products of that labor. This is the only sane way of looking the situation in the face. It is the only means open to the Germany of the future for liquidating her debt.

I am but expressing the views of the average American in stating that we longed to see the Huns driven back to Berlin, and to have had the conquering hosts of the allies occupy that country and set up a provisional government therein, until such time as they were satisfied that the German people were fit to govern themselves.

The Situation Regarding Germany, Defeated But Not Conquered

It must be admitted, however, that Germany is defeated but not conquered. In view of the atrocities she has committed and the laws she has violated, Germany is in no condition to be treated with, at present. There is, as yet, no government in that territory capable of negotiating peace. History for 200 years back furnishes no precedent to guide the peace commissioners in the work set before them. The task is stupendous. It should be done at once and done right, if there is to be formed a "League of Nations" that will insure a lasting peace.

But, to return to the question, "Shall we traffic with Germany?" Why not? Let me suggest that the position of Germany, today, is very much like the man whose wife has overdrawn his pay at the company store. The foreman of the mine knows that he must keep the man at work and make it possible for him to earn good wages so that he will be able to square himself at the store.

The Delinquent in the Mine, an Analogy

The situation presents one of the greatest impositions on a mine foreman who wants to deal fairly and justly with all his men. It is one that does violence to a foreman's ideas of justice and equity. While it is well for a management to assist its worthy men all they can, and there are always a number of these at every mine, it is an injustice to the other workers to keep one man in a good place where he can earn big money, and compel others to work in poorer places, because this one or that one is behind in his account with the company. A continuance of such a policy is sure to dissatisfy many good men who are thrifty and pay their accounts promptly. It is, indeed, far from dealing fairly and justly by men who want to do right.

The case I have cited presents a strong analogy to the position of Germany, following the war. She is in debt, with no available assets with which to pay. To boycott German goods and labor would take from her the only means that she has to free herself from indebtedness. At the same time, trade with Germany should not be allowed to impair our traffic with other countries. Goods and prices should be such as to insure equal justice to all.

American Ideals and Standards

Considered from an ethical standpoint, American standards and ideals would be lowered by adopting a policy that would not enable the German people to retrieve themselves and establish a higher and better form of government than the autocracy that has ruled them in the past. Let us not lower the estimate that our boys "over there" have created by the unselfish service they have given in the cause of democracy.

The attitude of Germany when our aircraft began to do damage over their border was that of a cringing cur. Forgetting the devastation created by her armies and airplanes, in Belgium, France and England, she at once set up a howl and threw up her hands when the war threatened her own country. The allies realized, however, that Germany, in her present condition, is a greater asset than a country devastated by war.

It was this consideration that led to the willingness of the allies to negotiate a peace and desist from the subjugation of the enemy. But, it will be necessary to establish a solid and stable government in that country, even if the boys have to march into Berlin to accomplish their purpose.

S. D. HAINLEY.

Osceola Mills, Penn.

Fighting Publicity with Publicity

Letter No. 1—Not long ago, there appeared in *Coal Age* a very timely editorial entitled "Fighting Publicity with Publicity" [Nov. 21, p. 953]. Attention was then drawn to the exaggerated accounts, wrong statements and misrepresentations that are often made in the public press, by men and women who denounce the coal industry boldly, over their own signatures, which leads the public to believe in the truth of what is said. The suggestion was made that it would be far better if men, in the industry, would announce themselves with the same boldness and not permit the public to be misled by their silence.

The following incident will serve to show the reason why many men, holding inferior positions in large companies, but who are eminently able to treat subjects of interest connected with their calling, hesitate to have their names appear in print. The reason for this is to be found in the attitude of the management, in most large concerns. It is owing to this that many valuable discussions in *Coal Age* are signed only by some ficti-

tious or pen-name. An instance of this came to my notice recently.

Some years ago, a particular friend of mine frequently wrote articles that were published in *Coal Age* over his own name. A little later, he received a gentle hint that the company would rather not have its employees discuss matters pertaining to the industry, for publication. That this attitude is quite general among the larger coal companies is obvious, from the fact that the names of the employees of those companies seldom appear attached to the articles they write. However, it must be equally obvious to an intelligent management that much good has resulted to the coal industry through the publication of many of these nom-de-plume letters. How much greater good would have resulted had the same letters appeared over the names of their writers?

PRACTICAL ADVANTAGE GAINED IN PUBLICITY

The chief and, perhaps, the only objection a management would have to its men voicing their opinions publicly is that matters would occasionally appear that were not intended for publication. The danger of this is slight, however, where the policy of a company is well understood by its men who know, moreover, that such a procedure would endanger their position in the company. Since the episode just cited occurred, my friend's name has not appeared in print.

A practical application of the principle of *fighting publicity with publicity* is illustrated in the growing discontent of large classes of miners, growing out of the statements being continually made by agitators that the men are not receiving a fair wage, in proportion to the selling price of the coal they mine.

Were these statements permitted to go unchallenged, they would soon be accepted as true; whereas, superintendents and foremen, did they feel free to do so, would soon show the falsity of such a claim. It is these men whose familiarity with the situation would make their statements accepted and prevent the injustice otherwise done to the industry. JUSTICE.

Birmingham, Ala.

Perils in Reconstruction

Letter No. 1—I was deeply interested in reading the Foreword that appeared in *Coal Age*, Nov. 14, entitled "The War is Won, Now Let Us Win the Peace." The article furnishes the sober-minded person with plenty of food for reflection. It emphasizes the fact that one's patriotism and duties as a citizen, which have been so stimulated during the period of the war, must not cease now that peace is in sight.

As stated in the Foreword, "Peace has its problems not less acute than war." The coal-mining industry of this country is going to play a large part in the reconstruction of Europe, and the scenes that are now transpiring on the Continent suggest that the coming period of reconstruction will be fraught with all the perils of the French Revolution.

From present reports, it appears that Germany and Austria are passing through the same experiences that have torn Russia apart. Bolshevism is on a rampage that threatens to menace the civilization of all Europe, unless the Allies secure and maintain a firm hold on the irresponsible elements now asserting themselves.

In order to realize the objects for which we have fought and establish a democracy that is safe to live in, it will be necessary to arrest the acts of murder, pillage and destruction that are now rife in those countries; and, with infinite patience, bring about a readjustment of affairs that will permit some stable form of self-government.

The industrial life of this country must play an unselfish part in the task of redeeming civilization. The condition of Russia today proves that Bolshevism is a failure. For over a year, now, affairs in that devoted country have furnished another hideous example of what anarchy will do for a nation, and have recalled the scenes of the French Revolution, from which, at great cost, has arisen a noble republic. Bolshevism is synonymous to the lowest type of socialism.

The effect of this peril in our own country, in time to come, remains to be seen. One is loath to believe that this counterpart of socialism will ever find a fertile soil for its growth in America, notwithstanding the clamoring for so-called "justice and equity" that is heard from time to time. The freedom of the press, which is the pride of the American people, affords the socialist element the desired opportunity to give expression to their opinion that there is nothing reprehensible in the wholesale murder and depredations now being committed, in Russia, in the name of the Bolsheviki.

MAKE EVERY FOREIGNER AN AMERICAN CITIZEN

There are foreigners working in the mines, in this country, who may sympathize with their countrymen in what they believe to be a struggle against oppression. The foreigner's training has led him to regard as oppressors everybody except the working man himself, but many of those of average intelligence, who are naturalized citizens of the United States, have become enlightened, and no longer harbor these thoughts of oppression. Such have affiliated themselves with their new surroundings and are striving to build up an enduring democracy that regards all men as equal.

The foreigner who has thus assimilated himself and become an American citizen is not impressed with the sayings of socialism and the doctrines of the I. W. W. To him, these both mean anarchy and the ultimate destruction of all the principles of equitable government. In order to avoid the perils that confront us, it is our duty to encourage literacy and the naturalization of the foreigner, so that he will cultivate American ideals.

Thomas, W. Va. PATRIOT.

Expediting Locomotive Haulage

Letter No. 1—Recent letters of writers in *Coal Age* have mentioned the difficulty experienced by mine operators in getting motor-runners who will take the necessary care of the expensive machines they operate. Complaint has been made of much time lost at the motor-repair pits, and the frequency of replacing burned out armatures due to "plugging" the motor. Mention has been made of the cost of repairing strained storage batteries and other high maintenance costs occasioned by the careless way in which the average motorman handles his machine.

It occurred to me that it might be of interest to readers of *Coal Age* to hear of a plan that we have

tried, on a small scale, at one of our mines, where we instituted a system of paying the motormen and the snappers a per-diem wage, lower than the usual wage, for a certain minimum tonnage of coal hauled daily. In addition, these men were paid a bonus for the tonnage hauled in excess of this amount, which gave all a chance to make more than was possible on the former per-diem basis.

What was the result? Where the locomotive crews formerly made from $5 to $6 a day, under the new system they have averaged from $7 to $8 a day. In the same 8-hr. shift, however, they hauled 30 per cent. more coal, owing to the increased interest taken to make good money.

The men were not slow to learn that all time lost at the motor-repair pit meant a direct loss to them in the bonus earned. On this account, they were anxious to learn the best methods of taking care of their locomotives, in order to reduce the time required to keep the machine in repair. They realized that all such work was unproductive labor on their part. There was, noticeably, a rapid increase in the number of burned out armatures, sulphated batteries, which showed a decreased cost of production per ton of coal hauled.

A remarkable fact, in this same connection, was that the old complaint of loaders and miners that they could not get cars to load was unheard, now, as the crews kept every miner well supplied with cars. Each motorman saw to it that his snapper lost no time in throwing switches and that he used extra care in coupling and uncoupling cars, which has been frequently the cause of much delay and accident.

Enterprising Motorman Gains Advantage by Monopolizing the Roller-Bearing Cars

About a week after the new system was started, an interesting outcome developed. At that time, about one-half of the cars in the mine were equipped with plain bearings and the other half with roller bearings. It soon appeared that one enterprising motorman, knowing how much easier it was to haul cars with roller bearings, had stolen a march on his fellows and had adroitly cornered most of the roller-bearing cars in his section of the mine. This enabled him to handle a greater number of cars in a trip and resulted in a good increase in his bonus for the time. There was also less delay in loading those cars, in that section, because of the ease with which the roller-bearing cars are handled in the rooms.

It did not take long, however, for the other crews to size up the situation; and it became necessary to instruct the men on the tipple to distribute the roller-bearing cars equally among the crews. As quickly as possible, all the cars used in the mine were changed to roller bearings and the situation greatly improved.

The principle underlying this system is not new. It is based on the fact that men will take better care of their own property, or what is producing revenue to them, than they will of the property of their company. Also, repairs to machinery formerly meant, to them, time for loafing; but under the new system, it meant a lower paycheck.

It is my belief that a similar bonus system could be used to advantage, in paying motormen in many mines, while, no doubt, in some mines, a straight tonnage-payment basis would be better. In either case, there would be an inducement for each motorman to haul the largest possible tonnage in a day.

Washington, D. C. Maverette Ashley.

Centrifugal Mine Pumps

Letter No. 2—Speaking of centrifugal pumps, permit me to give my experience with the same. About 15 months ago we changed our mine pumps, replacing seven steam pumps with four centrifugal pumps driven by electricity. Of the discarded steam pumps, three had a capacity of 2000 gal. per min.; two, 600 gal. per min.; and the remaining two, each, 1000 gal. per min.

Each of the centrifugal pumps installed has an estimated capacity of 2200 gal. per min. On a recent test, these pumps handled 2240 gal. per min., at a speed of 1760 r.p.m. The pumps consumed a current of 28.5 amp., at 2200 volts. Three of the centrifugals have handled the water at all times, thus far, without trouble; although, last spring, the flow of water in the mine was as great as at any time in six years.

Discharge and Suction Pipes Larger Than Their Respective Openings in Casing

Referring to the statements of William H. Grady, in his letter, *Coal Age*, Jan. 9, p. 66, regarding the relative size of discharge and suction pipes in centrifugal pumps, and their respective openings in the pump casing, let me say that I regard it as an advantage to have the discharge and suction lines of a pump larger than their respective openings in the pump casing. At least, that is my experience.

Our centrifugal pumps have 8-in. openings in the casing, and these are connected with 14-in. discharge and suction lines. Both the discharge and suction pipes are lined with wood. There is a foot valve at the bottom of the column pipe, while the suction pipe has no valve, but is equipped with a water-jet primer.

Since the installation of the centrifugal pumps we have had no trouble at all, and practically no expense for maintenance or repairs. We are also operating a small centrifugal pump to drain a large swag or dip in the entry. This pump has a 3-in. opening connected with a 5-in. wood lined pipe, at both the suction and discharge ends. A foot valve is provided on the suction of this pump and a gate valve on the discharge line. The pump has given the most excellent results since its installation 18 months ago. David Fulton.

Greensburg, Penn.

Efficiency in Firebossing

Letter No. 4—Referring to the question of securing the greatest efficiency in the work of firebossing, brought out in the excellent letter of F. G. J., *Coal Age*, Dec. 19, p. 1133, permit me to say that it is my belief that the fireboss should be employed and controlled by the state, in order to attain the highest efficiency in respect to his work.

When one reflects that the fireboss must often work under an inefficient foreman, obey his orders and frequently do things that he knows do not comply with the requirements of the state law and, perhaps, will jeopardize the lives of those working in the mine, it is clear

that he is placed in an awkward position. His refusal to obey the orders of his foreman would result, sooner or later, in his discharge.

Under these conditions, a man with a large family must think twice before undertaking the responsibilities of this position. I know of firebosses who would do anything they are told, without regard to whether their acts are lawful or dangerous to the men working in the mine. While some fear the consequences of refusing to comply with an order they consider unsafe or unlawful, others are controlled by a desire to stand in with the boss. Neither of these give a thought in regard to their individual responsibility to the state. They are unprincipled and a disgrace to their more conscientious fellows who are guided by their own judgment. The average fireboss, in my opinion, is a man that can be trusted, in every respect, by his fellow workers whose lives are in his charge daily.

It has often occurred to me that if the firebosses and mine foremen, in this state, would come together at regular meetings and discuss ways and means of overcoming the difficulties of their work, they would not only better their capabilities but assist the management by which they are employed. In this way, also, they would come to be recognized by their companies and by the general public, as the men who are chiefly responsible for the safety and welfare of all employed in the mines.

It is true that the superintendents, mine foremen and firebosses of the larger coal companies hold monthly meetings in their several camps; but I can safely say that the majority of firebosses go to those meetings with the firm conviction that the only safe policy for them to pursue is to say nothing in regard to the one feature of their work that is most discouraging and 0armful; namely, the lack of freedom to use their own judgment in the performance of their duties.

Rains, Utah. FRED TURNER.

Efficiency in Mine Management

Letter No. 2—It was with keen appreciation that I read the article entitled "Need of Efficiency in Coal Mining," *Coal Age*, Nov. 28, p. 983. Methinks that the author of that article was a dyed-in-the-wool sufferer from the inefficiency he has so aptly described. Satire is crude, except when handled by an artist; but this writer has described with the touch of a master the reasons why some men never become more than the bosses of antiquated "holes in the ground."

The description in that article, of the lubrication of the grandfather type of mine-car wheels, familiarly known as "self-oiling" or "ring-oiling" car wheels, took me back several years, in memory. Once again I stood upon the tipple of a mine, a few miles from Birmingham, Ala. Before me was an oiler with his gun in hand, and every time a car came on the tipple he would shoot, shall I say, a quart of oil at each wheel. His aim was not that of a marksman, and a constant stream of oil was dripping through the tipple floor beneath which was a great mound of "blackstrap," as they called the oil, and dirt, mute evidence of the waste.

Again, my thoughts reverted to a visit I made, some months ago, to a mine in West Virginia, said to be an "uptodate mine," where 3000 self-oiling car wheels are purchased every year to replace the wheels worn out in the service of a few hundred cars. Conditions underground were the average conditions found in coal mines. The waste, in this case, was due to the use of the wrong kind of equipment. Judging from the appearance of the superintendent of that mine, no one could tell him anything. His father and his grandfather before him had worried along with the same kind of equipment and why should he use anything else?

I was in the mood for revery, and a third time my thoughts wandered to a visit made to one of the largest mines in southern Illinois. Here, a huge pile of scrapped equipment was mute evidence of the lack of definite knowledge of the demands to be made upon it in the operation of the mine. The man in charge was one of the "know-it-all" type, and the company had paid for his exalted opinion of himself, many times over in a year.

My thoughts still wandered and, in imagination, I pictured to myself the man who thinks that he cannot use brakes on his mine cars, because his conditions are different from those of the mine just across the field. He does not realize that all of the time he is ruining good wheels by the practice of spragging his cars instead of employing a suitable brake.

CONDITIONS DESCRIBED ARE UNIVERSAL

Someone may think I am citing exceptional cases. My answer is, Go into almost any section of the country and observe the same inefficiency wherever you go. There is told the story of a mine in western Pennsylvania that has a haul of several miles. As the story goes, all of the four wheels on the rear car are spragged so as to hold the trip stretched to its full length. Sparks flew from each of the spragged wheels, and it is easy to imagine the four wheels ruined in each trip made in that mine.

Let us suppose each wheel weighs 100 lb. At a cost of 4c. per lb., the value of four wheels is $16. And, while we are at it, let us say that 100 tons of coal is hauled per trip. Then each ton of coal is taxed 16c. to pay for the ruined wheels. Fortunately, this undue expense is compensated for by the good results of other mines operated by the same company; but that does not excuse the waste mentioned.

MANAGING A MINE NOT AN OFFICE JOB

Speaking of efficiency, there are a large number of mines that are conducted along the right lines, though I fear many of these fail to use the right system of accounting, particularly in respect to mine haulage. I have in mind, at present, a mine in southern Illinois. The mine is in charge of a thorough-going conscientious man who, though not the owner, is a stockholder in the company.

This man learned long ago that, to achieve the greatest success, his job is not an office job. He makes daily inspections of all the mine equipment, including locomotives, coal cutters, mine cars, etc. When he observes a plank giving way, he sends the car at once to the shop for repairs. He gives particular attention to the running gear and takes up all wear by thrust washers, besides seeing that the wheels are lubricated, not oiled, at stated periods. The track is always in good condition.

One feature that, to my mind, is the solution of the whole question of waste is that the superintendent just mentioned finds time to become acquainted with his drivers, loaders and machine runners. He knows their habits and practices, and the results he has achieved prove that a coal mine cannot be managed from a swivel chair.

In coal mining, there are more avenues for leaks than in most other industries. A manufacturer knows the cost of his raw material and the labor put upon it, which, added to his overhead charges, gives him a real basis of computation. In contrast to this, a coal mine is operating a property bought or leased, perhaps a decade or more ago. It is often the case that this and other capital charges are ignored; and, as long as the selling price of the coal mined is kept a little above the cost of its production, the mine is supposed to be making money.

Efficiency in management calls for accurate accounting and only those managers who have the best system, keep their cars in the best shape, their motors in good condition and buy the best equipment obtainable are making the most on their investments. OBSERVER.

Philadelphia, Penn.

Perplexities of Mine Foremen

Letter No. 7—A short time ago, I was reading the letter of "Mine Foreman," *Coal Age*, Oct. 24, p. 793, regarding a dispute between a miner and his foreman, in respect to some bottom coal that a machine runner had left in the miner's room.

It appears that the foreman offered to pay the miner for the extra work of cutting out the bottom coal; but the miner said he would have to first see the committeeman working in the next room before he could go ahead and cut out the coal. I failed to see how this matter should perplex the foreman. He should not worry because the miner was willing to lose a little time. A car of coal more or less would not seriously affect the day's output of the mine.

The Pit Committee of a coal mine controlled by the miners' union sometimes oversteps its authority, and a miner is always willing to listen to the committee when it decides in his favor. However, no one committeeman has any right to act alone or to tell a miner what he should be paid. Such action can only be taken by the committee as a whole, whose duty it is to take the matter up with the foreman and make an agreement with him that would seem to be right in the matter.

While the miners' union have accomplished a lot of good, there are instances where they have led miners to believe that the miner cannot secure a square deal from a foreman, unless he works through the union and depends upon their activities to secure to him his rights. So often has it happened that a Pit Committee has made trouble for a mine foreman, that coal operators have absolutely refused to recognize the union, in order to protect their foremen from trouble arising from that source.

A few years ago, when I was working in the Diamond shaft, at Springfield, Ill., the drivers had a habit of taking off a large block of coal from the corner of a loaded car, so as to make a seat for themselves on the car. In cleaning up this coal, it was credited to the company to offset the expense of gathering it up. The miners demanded an average weight for the coal to be credited to themselves, but their demand was refused by the superintendent.

By vote of the miners, for three days afterward, the men loaded their cars only "bedded," which amounted to a loss of 1500 tons. The difficulty was then settled by the superintendent agreeing to make an allowance of 4 tons of coal a day to 150 miners. But, what may surprise some, the affair did not seem to worry the foreman in the least, as he had often been called to face greater difficulties than that.

A Superintendent's Lack of Wisdom

Another instance I recall where a good foreman was busy "on top," ordering much needed supplies of props, rails and ties that were to be sent down at once into the mine. The superintendent appeared and ordered the foreman to get into the mine himself and get out the coal, or get off the job at once.

On that occasion the foreman replied, telling the superintendent to go down the mine himself and get out the coal, and then quit. Had he chose to do so, the law would have upheld the foreman in going down and ordering every man whose place was in need of material to get out of the mine, until the material could be furnished.

There are perplexities for which mine foremen are themselves to blame. One writer has referred to miners roaming about the mine "looking for the boss." That will seldom happen when the boss performs his duty by the men. Most mining states have a law requiring the foreman to visit every man's working place at least once a day, while the man is at work. When the foreman does this there will be no necessity for miners roaming about looking for the boss.

Foreman's Work Not Done When He Goes Home

The real perplexities of a mine foreman come when he goes home and is kept busy away into the night, thinking out his plans for the next day. After putting in 10 hours of hard work in the mine, he has his cost-sheet to make up and a list of supplies to be given to the outside foreman, telling what is needed in the mine. Other lists for the cager, rope rider, stable boss, timbermen and trackmen, must be made out, and, after a good smoke, the foreman goes tired to bed.

Think of a good practical foreman carrying these responsibilities for which he is paid $6 a day when the poor devils he must watch to see that they do not get killed load their 12 tons of coal, at 83c. a ton, which brings them practically $10 a day, and we are face to face with some of the few perplexities of foremen.

Organized as a Foremen's Protective League, under the Federation of Labor, it might be possible for mine foremen to secure consideration for themselves; but, until that can be done, my advice is, Stay on the job and run your mine in compliance with the law. Keep a keen eye on the old and abandoned workings; allow no accumulation of gas, and do your duty by the men in your charge. As President Wilson has said, "*Be willing, no matter what your personal fortunes may be, to play for the verdict of mankind.*" It is an immortal saying and worthy of our following.

Farr, Colo. ROBERT A. MARSHALL.

INQUIRIES OF GENERAL INTEREST

Correct Accounting

During the past two years, much attention has been given to the proper method to pursue in estimating the cost of producing a ton of coal. But, yet, there seems to be quite a variance of opinion as to whether such items as mine cars, steel rails and ties, copper wire and wire hangers should be entered in the equipment account or charged direct to the operating account as supplies. I have held the opinion that these and similar items should be charged to the stock account as equipment, and the operating account should be charged, each year, with an amount showing the depreciation, as all such items have a life of several years and are available as assets until they are no longer fit for use. The same question has, no doubt, puzzled many other operators and accountants, and I would like to have their opinions and know their practice. ACCOUNTANT.

Matewan, W. Va.

The proper accounting of mine supplies and equipment is truly an important matter. For lack of a proper charging of the numerous items that enter into the operation of a large coal mine, it has happened that the end of the year has more than once brought disappointment to the interested stockholder.

This correspondent is quite right in assuming that all supplies, machinery or other form of equipment that goes to form an integral part of the mine should be charged to the equipment account and a suitable amount for depreciation be entered each year as a charge to operating expense (profit and loss) and credited to equipment.

Wiring systems for telephoning, signaling or the transmission of power, ropes, piping, steel rails, steel ties or steel timbers are equipment, as they form part of the permanent fixtures necessary for the operation of the mine. They are chargeable to the equipment account, which should be credited with their depreciation. Repair supplies are chargeable to operating expense.

Lead Rail of a Mine Switch

Tracklayers, in coal mines, do not commonly have the training that enables them always to gain an intelligent idea of the meaning a textbook intends to convey. An instance of this is found in the description of a mine switch given in a leading mining textbook. I refer to Vol. 86 of the International Library of Technology, Sec. 48, p. 34.

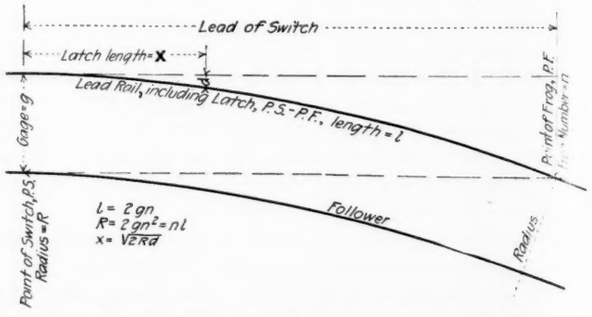
In naming the different parts of the switch, the text reads, "The lead of a switch, or frog distance, is the distance measured on the main line from the point of switch to the point of frog." This would seem to mean that the straight rail of a switch is the lead rail. However, on the same page, the very next paragraph reads, "The lead rail of an ordinary mine switch is the turnout rail, lying between the rails of the main track, which refers, apparently, to the curved rail, reaching from the point of switch to the point of frog.

The reading of these two references leaves the impression that the same term, "lead rail," is differently applied in different switches, one being described as an "ordinary switch," while the other is, perhaps, a special form of switch. Speaking of this text, I overheard a good tracklayer remark, recently, "my work is to lay the switch down, and the book should use names that I know what they are talking about."

My own impression and understanding is that the term "lead rail" refers to the curved rail extending from the point of switch to the point of frog, or what I would call the "transfer rail." In mine practice, however, I always avoid the use of the term *lead rail*, preferring to speak of the *curved rail* or the *straight rail* of the switch, which causes no confusion. Will *Coal Age* kindly explain the true meaning of "lead rail."

———, W. Va. INSPECTOR.

Had our correspondent read more carefully the text of the volume from which his quotations are taken, he would have noticed that the first sentence he quotes is



ILLUSTRATING THE COMMON MINE SWITCH

speaking of the *lead of the switch*, or what is commonly called the "frog distance," or the distance the frog is ahead of the switch, as measured on the straight rail. This has nothing to do with the "lead rail" of the switch, to which the second quotation refers and which is the curved rail reaching from the point of switch to the point of frog.

The length of the lead rail is always greater than the lead of the switch, which is measured on the straight rail of the main track, from the point of switch to the point of frog, as clearly indicated in the accompanying figure.

In every switch, there are two curved rails and, in the main track, two straight rails. For this reason, the terms "curved rail," and "straight rail" are indefinite. There is only one lead rail in a switch. The other curved rail is often called the "follower rail." To understand correctly, one must read the text closely, or there is bound to be confusion.

EXAMINATION QUESTIONS

British Columbia Examination, Third Class, Dec. 17, 1918

(Selected Questions)

Ques.—Describe the precautions necessary in general shotfiring and name some of the conditions under which you would refuse to fire a shot or shots.

Ans.—In blasting coal, the charge of powder should be free to perform its work in breaking down the coal. The hole should not be drilled too deep and the shot should be properly mined or sidecut, and any projecting tops or bottoms should be removed before the shot is fired. The charge of powder should be no more or less than is required to perform its work, and this should be pushed to the back of the hole and thoroughly tamped with clay or road dust.

It is very important that coal slack or other combustible material should not be used for tamping. In firing with fuse, extra care is needed when tamping the hole, to avoid injuring the fuse, which might result in a misfire. In firing with squibs, the match should not be broken off or soaked in oil, or otherwise treated to hasten its burning. Care must be taken in removing the needle from the hole so as to leave a free passage for the squib back to the powder. Before firing, all accumulations of fine coal and slack should be removed and the place tested for gas. In a dusty mine, it is necessary to sprinkle the place before a shot is fired in that place or one adjoining.

A shotfirer should refuse to fire any shot that, in his judgment, is unsafe, or that he has reason to believe contains an overcharge of powder or is improperly tamped. Also, no shots should be fired where there is an accumulation of gas or dust in the place.

Ques.—Name and describe the various gases found in coal mines, stating where they are found and how detected and giving their specific gravities.

Ans.—The names and specific gravities of the common mine gases are the following: Methane, or marsh gas (CH_4), specific gravity, 0.559; carbon dioxide (CO_2), 1.529; carbon monoxide (CO), 0.967; hydrogen sulphide, or sulphureted hydrogen (H_2S), 1.192. Olefiant gas (C_2H_4), 0.978, is associated with methane in mines. The nitrogen of the air, specific gravity, 0.9713, is frequently the chief constituent of the blackdamp found in mines.

Methane is found where generated at the face or accumulated in pockets of the roof or at the face of rise workings and is detected by observing the cap formed on the flame of a safety lamp when this gas is present.

Carbon dioxide is mostly found in poorly ventilated or abandoned or other void places in the mine, or where it has accumulated in swags or at the face of dip workings in the mine.

Carbon monoxide is to be found in the products of slow combustion or gob fires existing in poorly ventilated places. It also is a constituent of afterdamp resulting from an explosion of gas or dust in a limited supply of air. Carbon dioxide is detected by observing its effect of dimming or extinguishing a lamp. Its presence is also made known by producing headache or nausea. Carbon monoxide can only be safely detected by observing its effect on small animals, as birds, or mice confined in a cage and exposed to the mine air where this gas is suspected.

Hydrogen sulphide is a dangerous gas which, though less common in mines, may be found in low damp workings where sulphur, in the form of pyrites, is present in the coal or adjoining strata. The gas is detected by its smell, which resembles that of rotten eggs.

Ques.—What are the principles involved in the safety lamp and what are the requirements for a good lamp for general use?

Ans.—The principle of the safety lamp is the isolation of the flame from the outside atmosphere, by means of a wire gauze chimney, all openings being protected with the same wire gauze. As long as the gauze remains cool, the gas-charged air passes through its mesh, and the gas is burned within the lamp. The flame of the burning gas is prevented from passing out of the lamp, by the cool metal. In passing out through the mesh, the gas is divided into streamlets and its temperature reduced below the point of ignition, which causes the extinction of the flame.

The requirements of a good lamp for general use are the following: The lamp must give a good light projected upward for inspection of the roof and downward on the floor. Its construction must be simple and consist of few parts that are easily and correctly assembled. The lamp must be strong for service and rough usage and not be too sensitive to gas so as to cause flaming in the lamp when little gas is present. It must be light and portable. A working lamp must be provided with a form of lock or fastening that will reveal any attempt to tamper with the same.

Ques.—At the commencement of your shift as a fireboss, you find the barometer unusually low and the water gage unusually high. What conditions in the mine are thus indicated, and how would you proceed under these conditions?

Ans.—The unusually low barometer points to a possible outflow of gas into the mine workings from abandoned areas and other void places in the mine and suggests a careful inspection of all the working places, wherever gas may be expected to accumulate, particularly the rise workings.

The unusually high water gage, assuming the speed of the fan is normal, would indicate some unusual obstruction in the air-courses, which hinders the flow of air and increases the resistance of the mine. Under these conditions, the fireboss must use extra precaution to discover the cause and take steps for the immediate removal of any obstruction or other cause he may find.

FOREIGN MARKETS AND EXPORT NEWS

Azores Islands Offers Chance for American Coal

The districts of St. Michael's and Fayal (Azores) showed a notable gain in imports during the year 1917 over those of 1916, in consequence of the increase of coal shipments to the ports of Ponta Delgada and Horta. The imports of coal at Ponta Delgada in 1917 amounted to 3,032,253 escudos (normal exchange value of the escudo is $1.0805), compared with 854,549 escudos in 1916; at Horta, 1,104,512 escudos in 1917, against 401,712 escudos in 1916; and at Angra, 10,638 escudos in 1916, but none in 1917. There was consequently a gain of 2,869,866 escudos in coal imports in 1917 over 1916. Practically all the coal was used for bunkers in supplying the demands of the largest number of ships that ever visited these island ports in a single year. The Azores, which are owned by Portugal, exports among other commodities alcohol, beans, pineapples, tobacco, sugar, tea, wine and mineral waters. Increased banking facilities have been offered to merchants to do business in American markets. If satisfactory shipping facilities are established, there ought to be a marked increase in commerce between the United States and the Azores. Though the market is small, there is no reason why American coal should not find a ready sale in the Azores, as it is a port of call for ships sailing to the Mediterranean.

Coal Scarcity in Greece

During the recent war the importance of an adequate supply of coal to Greece from outside sources was strikingly brought out on several occasions. It seems, from U. S. Consular reports, that there are lignite beds of good quality in the southern Peloponnesus. Permits for lignite mining have been granted by the Greek Government to various companies, but up to the present time mining operations are understood to have been conducted at a loss. This state of affairs seems to be due to lack of proper machinery and information as to the best methods of production, transportation, and so on; the cost of lignite became so high in the markets as to discourage its use, while a lower figure for the product would have involved the mine owners in even more serious loss. For these reasons all the mines except that at the city of Kardamyli have stopped operations, and this plant has an insignificant output. There is great demand for fuel by the railroads and other industries of Greece which at present consume quantities of wood either alone or with lignite. The Consular reports emphasize the demand for fuel and note the favorable opportunity for capital to invest in lignite mining. However, due emphasis is laid on the necessity of approaching the problems of mining, preparation and transportation on up-to-date lines in order to reduce the cost of lignite to a minimum.

Canada's Coal Supply

The coal consumption in Canada for the calendar year 1917 amounted to 5,319,688 net tons of anthracite and 29,497,375 net tons of bituminous—a total of 34,817,063 net tons. The anthracite coal is practically all utilized for domestic purposes. Only one mine in Canada produces a near-anthracite coal, and the tonnage from that seldom exceeds 150,000 tons per year. It is apparent, therefore, that Canada depends upon the United States almost entirely for anthracite coal.

The bituminous coal is used largely for industrial purposes. Out of the 29,497,375 tons of total consumption Nova Scotia produces 6,324,684 tons; New Brunswick 188,660 tons; Saskatchewan 355,304 tons; Alberta 4,723,139 tons; British Columbia 2,418,920 tons. This makes a total of 14,010,707 net tons, which leaves Canada indebted to the United States for the balance (after deducting 1,733,156 tons of coal exported from Canadian coal mines) of 17,219,824 tons of bituminous coal, or a total importation of 22,539,512 tons of the annual coal consumption of 34,817,063 net tons.

In an effort to relieve the fuel shortage Great Britain is releasing former workers in the coal mines of the Kingdom at a rate approaching 5000 a day. The coal shortage affects not only England's industrial reconstruction and the comfort of her householders, but that of several European states which have always looked to England for coal. Unlike conditions in the United States, which is rationed closer on anthracite than on soft coal, in London and elsewhere one may have two tons of anthracite in place of one of soft coal.

Market in South America for United States Coal

If the coal operators of the United States can compete with the British facilities in shipping by securing cheap bottoms, there is no reason why this country cannot obtain the coal trade of South America. Most of the coal used in South America comes from Cardiff, Wales, and points in Australia. There is a big demand for coal in Buenos Aires, Argentina, and in Montevideo, Uruguay, for bituminous coal for domestic and industrial purposes. A better effort will have to be made by American coal operators in the manner in which they handle their coal for shipment, as the cargoes from America in the past appear to be pulverized by the time they reach their destination.

Peru imports all of its coal for railroad purposes, and also for gas plants and other industries. Argentina consumes much coal on its extensive railroad system, as does Central Brazil.

Coal destined to points north of Valparaiso, Chile, is generally shipped through the Panama Canal, but for shipments south of that point it pays to ship around the Straits of Magellan, unless time is a consideration.

Coal Shortage in Germany

The coal situation in Germany appears to be causing some alarm. Owing to sickness among mine laborers and the sudden departure of the many prisoners who were working in the mines, the production in all districts has fallen far below normal. One report recently received from Essen is to the effect that the output of the mines in that vicinity is only about half the normal figure. A report from the same district, in the Norddeutsche Allgemeine Zeitung of Nov. 25, states that about 20,000 prisoners and other foreigners employed in the mines there have left since the signing of the armistice; and there has not yet been time to fill their places with demobilized troops. To a certain extent railway traffic also is disorganized. These conditions have caused such an acute shortage of coal in Berlin, for instance, that special measures are being taken to keep the consumption as low as possible.

Exports of Anthracite and Bituminous Coal and Coke, by Customs Districts and Countries—November, 1918

(Compiled by Bureau of Foreign and Domestic Commerce)

From Customs District	To	Anthracite, Tons	Bituminous, Tons	Coke, Tons
Maine and New Hampshire	Canada	1,770	1	.....
Vermont	Canada	1,614	3,107	206
Massachusetts	Newfoundland	31	....	.....
Massachusetts	Canada	....	2	.....
St. Lawrence	Canada	92,308	207,685	3,617
Rochester	Canada	46,434	80,584	655
Buffalo	Canada	264,122	280,079	47,966
New York	Canada	8,542	192	.....
New York	Guatemala	....	....	3
New York	Panama	....	....	295
New York	Newfoundland	515	....	.....
New York	Barbados	25	....	.....
New York	Jamaica	....	....	2
New York	Cuba	....	....	26
New York	Haiti	....	1	.....
New York	Santo Domingo	100	28	3
New York	Argentina	....	....	125
New York	Brazil	....	....	4
New York	Chile	....	....	33
New York	Venezuela	....	....	3
Philadelphia	Canada	100	....	.....
Philadelphia	Uruguay	100	1,642	.....
Maryland	Mexico	....	2	.....
Maryland	Cuba	....	3,097	.....
Maryland	Argentina	....	....	1,639
Maryland	Chile	....	....	12,006
Maryland	Colombia	....	905	.....
Maryland	Peru	....	....	3,000
Maryland	Uruguay	....	4,442	.....
Virginia	Bermuda	....	2,030	.....
Virginia	Panama	....	3,188	.....
Virginia	Barbados	....	9,394	.....
Virginia	British West Indies	....	4,622	.....
Virginia	Cuba	....	90,870	1,803
Virginia	Virgin Islands	....	2,989	.....
Virginia	French West Indies	....	2,247	.....
Virginia	Dominican Republic	....	1,747	.....
Virginia	Argentina	....	1,168	.....
Virginia	Brazil	....	55,623	.....
Virginia	Chile	....	22,143	68
Virginia	Uruguay	....	4,237	.....
South Carolina	Brazil	....	3,624	.....
Georgia	Cuba	....	1,059	.....
Florida	Cuba	....	3,453	.....
Mobile	Cuba	....	200	.....
New Orleans	Guatemala	....	....	2
New Orleans	Honduras	....	170	5
New Orleans	Nicaragua	....	217	.....
New Orleans	Cuba	....	1,000	.....
San Antonio	Mexico	821	514	8,015
El Paso	Mexico	248	5,896	5,813
Arizona	Mexico	192	3,056	14,391
So. California	Mexico	1	7	.....
San Francisco	Salvador	....	4	12
Washington	Canada	104	140	98
Washington	Chile	....	3,192	.....
Dakota	Canada	77	1,366	42
Duluth and Superior	Canada	....	1,471	154
Michigan	Canada	6,008	147,112	25,940
Ohio	Canada	7,357	662,408	20,721
Totals		430,369	1,616,914	146,647

Hampton Roads Coal Exports

NORFOLK

			Cargo	Bunkers
Lamberts Point				
1-13-19	Jap. S.S. Seiyo Maru	San Francisco	6,648	.....
1-13-19	Am. Sc. Maria	San Juan, P. R.	502	.....
1-13-19	Am. Sc. Kenwood	Para, Brazil	1,312	.....
1-13-19	Nor. S.S. Christian Bors	Rio de Janeiro	5,355	1,377
1-14-19	Nor. S.S. Nepos	St. Lucia, B. W. I.	3,994	442
1-16-19	Br. S.S. Breynton	St. Vincent, C. V. I.	5,894	504
1-16-19	Am. Sc. Salem	Para, Brazil	1,208	.....
1-16-19	Ital. Bk. Wallacetown	Puerto Ferrajo, Italy	2,194	.....
1-16-19	Jap. S.S. Ide Maru	San Francisco, Cal.	4,940	922
1-16-19	Am. S.S. Polar Star	Santa Anna, Brazil	4,165	316
1-18-19	Lake Gradan	Barbados, B. W. I.	3,400	350
1-18-19	Oaklands Grange	Montevideo, Uruguay	6,308	1,291
1-18-19	Nor. S.S. Belita	Havana, Cuba.....Coke	497	267
Sewalls Point				
1-14-19	Am. S.S. Crawl Keys	Havana, Cuba	2,721	220
1-14-19	Am. S.S. Shawmut	Havana, Cuba	1,651	283
1-17-19	Lake Gratis	Havana, Cuba	3,349	286
1-18-19	Eurymachus	Montevideo, Uruguay	5,158	1,884

NEWPORT NEWS

1-11-19	Am. S.S. Lake Fondulac	Cienfuegos, Cuba	3,041	365
1-14-19	Am. S.S. Pollux	Havana, Cuba	3,331	543
1-14-19	Am. Sc. Mount Ranier	Santos, Brazil	2,960	.....
1-15-19	Am. S.S. Crathorne	Antilla, Cuba	2,581	371
1-15-19	Br. S.S. Teenkai	Montevideo, Uruguay	4,000	2,082
1-16-19	Am. S.S. Zuiderijk	Callao, Peru	5,992	549
1-16-19	Du. S.S. Andijk	Rotterdam, Holland	7,566	1,496
1-17-19	Br. S.S. Clan Macbrayne	Buenos Aires, A. R.	5,643	1,228
1-18-19	Am. Sc. Alla G. Turner	San Juan, P. R.	750	.....
1-18-19	Am. Sc. Pusey Jones No. 4	Puerto Plata, S. D.	488	.....
1-18-19	Am. S.S. Dorothy	Havana, Cuba	2,930	271
1-18-19	Am. S.S. Flirt	Humacao, P. R.	1,637	350

American Shipping Rates Cut

The U. S. Shipping Board on Jan. 27 announced a reduction in transatlantic freight rates to meet a cut made by the British Government. To Marseilles, Cette, Genoa and Naples the new rate is $1.60 per 100 lb., or 85c. per cu.ft. against the old rate of $75 per ton, rates based on weight or measurement at ship's option. The new rate to the United Kingdom is $1 per 100 lb. or 50c. a cu.ft., against the old rate of $66 a ton. The rate to Havre, Bordeaux, Antwerp and Rotterdam is $1.25 per 100 lb., or 65c. per cu.ft., against the old charge of $65 a ton.

Consular Invoices

The War Trade Board announces that the regulations contained in W. T. B. R. 409, issued Dec. 18, 1918, have been amended and that consuls have been instructed to certify invoices covering all unrestricted commodities without requiring evidence of the issuance of an import license and of the number thereof. In announcing this simplified procedure, the War Trade Board desires to impress upon importers that, for their own protection and to avoid the possibility that shipments may be made for whose importation license may be refused by reason of noncompliance with enemy trade regulations or for other reasons, they should secure import licenses before shipments are made.

COAL AND COKE NEWS

Harrisburg, Penn.

Particular attention was given by the United States subcommittee on manufactures, which is investigating the high price of anthracite coal and the alleged shortage of domestic sizes, to royalties paid by producing companies and to the cost of production.

Estimates by witnesses as to the cost of production ranged from $3.50 to $4.64 a ton, while the amount of royalties paid was said to be from 40c. to $1.30 a ton. It was testified that royalties, especially those paid to the Stephen Girard estate of Philadelphia, had steadily increased in the last five years.

A. C. Dodson, head of the Dodson Coal Co., testified that the royalties constituted about 23 per cent, of the selling price. On an investment of $2,000,000, he said his company had paid the Girard estate, since 1914, royalties of $1,873,000 on coal from 390 acres. He said the Girard estate was the barometer in determining royalties and that other owners, before leasing virgin coal lands or before making a new scale of royalties, invariably gaged their prices on what was charged by the Girard estate.

"Every time wages are increased or any other factor aids in boosting the price of coal, the Girard estate collects on it," commented Senator Jones.

Mr. Dodson estimated roughly the cost of producing a ton of coal at $3.50, while the estimate of Charles Dorrance, operating head of the Hudson Coal Co., was $4.64. A. B. Jessup, general manager of the G. B. Markle Co., told the committee the average cost at his mines in the Hazleton region was $3.80 a ton with a reduction of 30c. paid in royalties. Of this cost, he said, 30 per cent. represented the labor charge.

Mr. Jessup said the rate of royalties was regulated the same as for any other commodity, by the highest price the coal land owner could get for the lease on his lands.

T. Ellsworth Davies, a Scranton coal mine expert, estimated that there are about 23,000,000,000 tons of unmined anthracite in the Schuylkill County fields. At the present rate of mining, he testified, this coal will not be exhausted for 900 years.

Uniontown, Penn.

The Regional Fuel Administration, the agency which directed the mobilization and regulation of the Connellsville coke region for the part it played in the war, will be discontinued on Feb. 1 when price restrictions and the zone system of distribution are removed. With the closing of the regional fuel office the industry is returned to a normal basis, and operators and producers generally are prepared for the occasion.

Since May, 1918, when statistical reports of production were first compiled, the output of the Connellsville region has totaled 11,660,368 tons of coke and 6,812,027 tons of coal, or an aggregate production of 24,302,579 tons. Removal of fixed prices is expected to create a steady market, and operators are planning a curtailed production for a few weeks until conditions become more settled in order that an oversupply will not be secured to beat down the market.

Production of coal and coke in the Connellsville region for the week ending Jan. 17 reached its highest figure since the ending of the war. Figures issued at the office of the Regional Fuel Administration show an aggregate output of 631,099 tons, an increase of 64,561 tons over that of the preceding week. Coke was 290,465 tons, an increase of 19,550 tons, and coal shipments were 195,391 tons, a gain of 24,976.

During the present period of uncertainty repairs will be made to ovens and plants in preparation for the spring rush. Coal has been "off color" in the market since the first of the year; but the removal of prices finds the demand for coke active, although some "spot" was sold this week for $5.25.

Charleston, W. Va.

The removal of zone restrictions and the freedom from tidewater embargoes is conducive to operations on a larger scale in the New River district. Vessel space appears to be more plentiful, and consequently congestion at tidewater points has been relieved. A large tonnage of New River coal is now being absorbed by the Navy. With the Western markets now open to them, New River mines will begin within a week or so to ship coal to the West, zone restrictions having prevented that heretofore. In view of the fact that miners and operators are getting ready for the wage conferences for the coming year, labor conditions are somewhat unsettled.

"No market," and a labor and car shortage, was responsible for a decrease in production in the New River and Pocahontas district. The total production was 335,931 tons, this being a gain of about 35,000 tons over the previous report. Even though the market for Pocahontas coal has been somewhat limited, partly attributed to zone regulations, prices have been maintained and it has been found difficult to secure enough men to man some of the larger operations.

Impetus will be given operations and consequently production, to some extent at least, in the Kanawha district following the removal of the ban on shipments into certain zones, and more coal will move westward in the future. The full effect of the Fuel Administration's latest order will not be felt, however, for a time, owing to the fact that there is plenty of coal on hand in the West; but there will undoubtedly be, in the opinion of Kanawha operators, some stimulation of trade in the Kanawha region. Production during the week ending Jan. 18 reached 107,785 tons.

It continues to be a peculiarity of conditions in the Fairmont region that although there is no longer any imperative demand for coal, yet transportation facilities have been better in the region than at any time in the last twelve months. There was furnished to the mines of the district during the weekly period ending Jan. 18 with clock-like regularity, not less than 2300 cars on any one day, more than the mines of the district succeeded in loading. There was, during the same period, a healthy demand for the product of the Fairmont district, the bulk of the coal mined being shipped eastward. Prices are being maintained even with a somewhat diminished demand.

Once again loss of production is larger than actual production in the Logan mining district, as the production report for the week ending Jan. 18 shows. The total output only reached 149,829 tons, while the production loss was 172,384. By far the largest part of the loss was due to no market, such a loss amounting to 139,776 tons, other losses outside of that from car shortage being comparatively small.

New York, N. Y.

Wilbur A. Marshall was elected president of the Wholesale Coal Trade Association of New York by the Board of Directors of the organization on Jan. 21. Mr. Marshall succeeds George M. Dexter, of Carpenter & Dexter, who declined reëlection.

At the annual meeting of the association, which was held in the Whitehall Club, reports read by Charles S. Allen, the secretary, and by C. C. Harris, the treasurer, showed the organization to be in a flourishing condition.

Addresses were made by E. A. de Lima, president of the Battery Park National

Bank, who spoke on trade acceptances from a banker's standpoint; by George H. Cushing, managing director of the American Wholesale Association; and by Major W. R. Coyle, a member of the Board of Directors of the Association, who had just returned from France where he served with Uncle Sam's forces.

The election of directors resulted in the following being chosen: W. S. Alden, W. R. Coyle, George M. Dexter, E. Kelly Downey, C. C. Harris, J. M. Leonard, W. A. Marshall, Howard C. Matlack, Charles A. Owen, Gardener Pattison and LeBaron S. Willard.

Besides M. Marshall, as president, the Board of Directors elected the following officers: Vice President, Charles A. Owen, to fill the vacancy caused by the resignation of Mr. Willard; treasurer, C. C. Harris. Mr. Allen will continue as secretary.

Mr. Marshall, the newly elected president, is a well known member of the coal trade. He is president of W. A. Marshall & Co., the Lincoln Coal Co. and the Wolf Den Coal Co.

It is understood that the change in assessing demurrage charges as recommended by the Bituminous Operators' Committee of the Association ["Coal Age," Vol. 15, No. 4, page 186] will be put into effect on Feb. 1, and that the Tidewater Coal Exchange will take up the matter of coal classification schedules at its meeting on Jan. 31.

PENNSYLVANIA

Anthracite

Williamstown—The dead body of Charles Barry, fireboss at the Susquehanna Coal Co.'s colliery, who was buried in a rush of coal, was found several days later by rescuing parties that had been working since the time of the accident. Charles J. Price, state mine inspector, of Lykens, was badly bruised in a fall while aiding in the search.

Mauch Chunk—The Anthracite Forest Fire Protective Association, which is composed mainly of coal corporations and large woodland owners, both private and corporate, is undertaking to protect 70,383 acres of forest land from destruction by forest fires. This land is almost entirely located in Carbon, Schuylkill and Luzerne Counties.

Summit Hill—Many old-time and practical miners are predicting that the present method of digging coal underground will soon be superseded altogether by stripping. The Lehigh Coal and Navigation Co. is at present placing another large steam shovel at a point about 500 ft. up the mountain here, where a large stripping operation will be started.

Wilkes-Barre—The Lehigh Valley, Traders', Central, Wilkes-Barre and Hudson companies have been indicted on the first indictment of its kind for damage to surface property and must stand jury trial for injury wrought by mine caves in Plains township. The action against the companies was brought by the Township commissioners after several streets had been damaged by caves.

Shenandoah—The cage in the Hammond Colliery shaft jumped the guides on the morning of Jan. 21, tore and crushed the shaft timbers out of place for many yards and hurled the large timbers to the bottom. Considerable damage was caused and the colliery was forced to suspend, throwing 1200 men and boys idle. Only the fact that coal was being hoisted at the time the accident occurred accounts for no loss of lives.

Wilkes-Barre—The Lehigh & Wilkes-Barre Coal Co. has given notice that every man who left the service of the company to take up arms for the country will be given his old position. C. F. Huber, the president and general manager, announced that returning soldiers and sailors have only to inform the mine foremen under whom they worked of their desire to return. There are 24,000 jobs open for mine workers in the anthracite fields. Ten hundred and seventeen men formerly employed in the anthracite region are scheduled for early release from military camps.

Hazleton—J. S. Wentz & Co. are arranging preliminary plans in connection with the large tract of coal properties recently acquired at Raven Run. It is understood that the present operating company holds a lease for about another year, but the Wentz company will perfect its plans to take over the tract as soon as available. In connection with the proposed work, a new breaker will be erected, with other structures, the mines to be electrically operated throughout. It is also understood that the company is considering the development of a new townsite at the operation

Glen Lyon—Thomas M. Cooper and Morgan Thomas received burns in an explosion of gas in No. 2 shaft of the Alden Coal Co., on Jan. 18, which resulted in their deaths at the Nanticoke State Hospital.

Pottsville—For the first time since the beginning of the world war, coal is now accumulating in the anthracite region. The Philadelphia & Reading Coal and Iron Co. has begun filling up the bins in the big storage yards at Landingville, and three of the big "pockets" which extend down the moutain side are already filled with coal. The only coal being stored, however, is of the steam sizes, and if this coal continues to accumulate a number of coal washeries will be closed down, as they produce steam sizes of coal almost exclusively.

Carbondale—Under the terms of a settlement reached by counsel at the opening of court Thomas Calacuis, who was injured while at work in a Hudson Coal Co. colliery, is to receive $2800 damages from the company, while his father is to get $450. Attorneys representing the boy contended that he was under fourteen years of age at the time of the accident, and that he should not have been employed.

North Scranton—Recently the New York courts awarded the heirs of the Rockwell and Gilbert families, owners of coal underlying a considerable portion of the city, back royalties in the sum of $429,000, the heirs having charged that the Delaware & Hudson Co. had failed to pay for small sizes mined. At the time the suit was instituted the plaintiffs asked for forfeiture of the lease, and also won on this point. Although the Delaware & Hudson promptly appealed from the decision, it has since opened negotiations with the Rockwell and Gilbert heirs for a settlement of the case. It is understood that the company would like to either renew the lease or execute a new one, and others, notably the Scranton Coal Co., it is reported, would like to secure the lease. The tract of land being mined comprises 325 acres and is said to be rich in coal, being mined through the Leggitt's Creek shaft.

Mount Carmel—Plans for the electrification of all the anthracite mining operations owned by the Susquehanna Collieries Co. in the Mount Carmel-Shamokin coal fields, the power to be generated at one central plant, are about completed and the work of construction will begin shortly. The big plant, which will cost several millions of dollars, will be located at Green Ridge, near the Pennsylvania colliery, engineers having recently laid out the site of the building. The ground is already cleared. From the power plant high tension wires will be strung to the Richards, Pennsylvania, Scott, Hickory Ridge, Hickory Swamp, Luke Fidler and Cameron collieries. At all these operations electrically driven machinery will supplant that now used in the operation of slopes, shafts, planes and breaker machinery, and the steam plants now in operation will be done away with.

Larksville—No. 5 breaker of the Delaware & Hudson Coal Co. was totally destroyed by fire on Jan. 21 and 2500 men and boys are temporarily idle. The monetary loss is difficult to estimate, but company officials are of the opinion that the breaker can be replaced in about six months at an expenditure of $500,000. The work of rebuilding will begin immediately, according to instructions received from heads of the company in New York. The destruction of the breaker, which handled the daily output of 4000 tons of coal from five west side mines, has necessitated the shipment of this huge amount of coal to the Baltimore colliery at Wilkes-Barre, and Coal Brook and Powderly breakers near Carbondale, which work, it is believed, will be started within ten days. The fire originated in the preparing room about 7:45 a.m., and was caused by sparks from an overheated motor igniting the woodwork.

Wilkes-Barre—"We are beginning to read the handwriting on the wall and are investigating possibilities and probabilities," said F. M. Chase, general manager of the Lehigh Valley Coal Co., recently, when asked if the Lehigh Valley is considering shutting down some of its collieries, because of the slackness in the demand for anthracite. It is reported that at a recent meeting of company executives the question of shutting down several collieries in each district where the production cost is highest was discussed, with a view to adopting this expedient if the market should become so dull as to warrant it.

Bituminous

Johnstown—Thomas Currie, of Nanty-Glo has purchased for $50,000 the Finesome coal mine at Confluence, Somerset County, the deal including tipple, buildings and a lease on 200 acres of mineral. The property was formerly a part of the holdings of Cosgrove & Co., of Johnstown.

Uniontown—The four miners entombed on Jan. 20, in the Mt. Braddock mine of the W. J. Rainey Coal Co., are alive. On Jan. 22 they were rescued by teams from the H. C. Frick Coke Co. and the Central Connellsville Coke Co., led by State Mine Inspectors Richard Maize, E. E. Girod and William Langan, who had been in the mine day and night to reach them. The miners killed on Jan. 20 died from asphyxiation in an attempt to release the entombed men, who had been cogging in the affected section of the mine. About 4 a.m. on Monday, Jan. 20, a large rock and refuse bank which was afire dropped into the mine, due to a cave-in, and set fire to a portion of the workings.

WEST VIRGINIA

Glen White—Construction work will be begun on a large tipple for the E. E. White Coal Co. within the next few months, engineers having virtually completed surveys and other preliminary work in connection with the erection of the structure, which will be most completely equipped.

Bluefield—Fire completely destroyed the Norfolk & Ungle tipple of the Pocahontas Fuel Co. at Switchback on Friday, Jan. 17, but while the fire resulted in a total loss, the company was protected by insurance even covering loss of profits, cost of operation, etc. The destroyed tipple, one of the largest in the Pocahontas coal fields, will be replaced by a steel structure.

Logan—The general store building as well as several dwellings owned by the Standard Island Creek Coal Co. were completely destroyed by fire at Taplin, W. Va., on Thursday, Jan. 16.

Morgantown—Operations at the Bertha mines of the Quality Cement Coal Co. in Monongalia County, one of the largest operations on the west side of the Monongahela, were suspended at the last p
It is not known when the company will resume the mining of coal. Nearly all o the mines in that section, except the North American, have shut down, and miners in the community are idle. Conditions are similar along the Morgantown & Kingw R.R., and in other coal mining sections of the county.

OHIO

Carrington—The Sunday Creek Coal Co. and allied interests are erecting a new tipple at Mine No. 9 at this place. This is one of the largest mines of the company and is located on the Zanesville & Western R.R. The Ohio Collieries Co., operated by the George M. Jones Co., of Toledo, is also making many improvements.

INDIANA

Terre Haute—The Indiana Bituminous Coal Operators' Association, with headquarters here, has advertised a reward of $1000 for information leading to the conviction of persons responsible for surface mine fires, most of which were believed to have been of incendiary origin the past year. There were a number of serious surface mine fires the past twelve months.

ILLINOIS

Herrin—The Pond Creek Coal Co.'s mine has been sold to D. E. McMillan, Chicago, and James C. McElvarn, of Springfield, for $250,000. The property consists of 1000 acres, with an output of 1500 tons a day. It employs 250 men.

Pekin—The Tazewell Coal Co. has filed an appeal in the Illinois Supreme Court against the Illinois industrial commission and Mrs. Matina Lipnick, administratrix of the estate of her deceased husband, Andrew Lipnick, who was killed in the mine of the Tazewell Coal Co., to review the judgment of the Tazewell County circuit court, which gave Mrs. Lipnick damages for the death of her husband.

Springfield—The Peabody Coal Co. has in the past year completed two holes, each 426 feet deep, and 18,546 tons of coal have been hoisted at a rate of 300 tons daily. There are now 125 men employed in the mine. Eventually there will be 4500 tons of coal hoisted daily and 750 men will be on the pay rolls.

Bloomington—The Chicago & Alton R.R. has begun the storage of 50,000 tons of coal at various points. This is done in anticipation of a possible shutdown of Illinois mines Apr. 1. Reserve supplies of coal are being stored at Chicago, Bloomington, Springfield, Roodhouse and other points.

Belleville—The temporary injunction obtained in the Circuit Court recently by the Missouri-Illinois Coal Co. against the White-Sergent Coal Co., restraining it from abandoning the mine at Rentchler Station which it has been operating under a lease from the Missouri-Illinois company, has

been dissolved. The injunction was obtained on the representation that the White-Sergent company had violated the agreement to operate the mine continuously and that accumulating water was destroying the equipment. The dissolution was granted when it was shown that the White-Sergent company had given notice of intention to discontinue operation in December, and that when the injunction was obtained it had men pumping the water out of the mine.

KENTUCKY

Earlington—The St. Bernard Coal Co. is erecting a large power house at its plant here.

KANSAS

Cherokee—Fire at the plant of the Hamilton Coal Co., Shaft No. 6, recently destroyed a portion of the tipple and the chutes. The total loss is estimated at approximately $50,000.

Foreign News

Quebec—Never in the history of navigation on the St. Lawrence has a steamer left Quebec for the open sea so late in the season as the Canadian "Voyager," which departed on Jan. 22 for Halifax and then overseas. The St. Lawrence is ordinarily ice locked here at this time of year.

Victoria, B. C.—The Rocky Hard Coal Co., which has large interests in what is known as the Alberta Coal Branch of the Grand Trunk Pacific, are actively operating on a large hill of coal which extends 60 ft. above the level of the railway tracks, coal being taken from a facing of about 400 ft. The field is located near Coalspurstation, 47 miles south of the town of Edson. The coal is of good quality and is being shipped as far east as Winnipeg. Its accessibility is indicated by the fact that steam shovels are being used in loading the coal directly from the coal beds into the cars.

Nanaimo, B. C.—A verdict has been given by the Coroner's jury before which an inquest was held into the cause of the death of 16 coal miners at Nanaimo, B. C., on September 10 last. It reads as follows: "We, your Coroner's jury, empanelled to inquire into the death of Robert Kelly and 15 others in Protection Shaft, of the Canadian Western Fuel Co., Sept. 10, 1918, find that the said men came to their death by descending on a defective cable, which broke, owing entirely to the oxidizing of the wires, chiefly caused by apparent absolute lack of any internal lubrication, leaving the wires thus exposed to the action of a more than normally corrosive water and a humid atmosphere. In view of the evident general unreliability of exterior lubrication measures, which from the evidence adduced failed to preserve to any very appreciable extent the life of said cable or preclude against deterioration, we suggest that the Department of Mines recommend the appointment of an expert inspector of hoisting ropes, cages, safety catches and all appurtenances generally, and that legislation be enacted whereby under such abnormal conditions as obtained in said shaft no new hoisting cable be retained in service longer than some reasonable time to be determined by the Department of Mines, as otherwise there would appear to be no practicable process which can be adopted and absolutely relied upon looking to the absolute dependability of such hoisting cables against defect or breakage under all present governing conditions."

Personals

R. G. Rees, formerly in the coal business in Lima, Ohio, has been made sales manager of the Maple Hill Coal Co., of Columbus, Ohio.

J. A. Cameron, recently returned from service in France, has accepted the position of superintendent of the Ellsworth Collieries Co., Ellsworth, Penn.

M. L. Carriger has been succeeded as superintendent of the Midland Coal Co., of Barbour County, by **E. S. Walfesberger.** Mr. Carriger will return to the Pocahontas fields, where he previously held an executive position.

Clarence H. Robbins, general inside superintendent of the West End Coal Co., has resigned his position to take effect Feb. 1. Mr. Robbins has been connected with the West End interests for more than forty years, and has had charge of the inside workings for over thirty years.

Thomas J. Davis has been named sales manager of the Producers' Coke Co., the largest brokerage concern in the Connellsville coke region, to succeed Wiley L. Byers. During the war Mr. Davis, in the capacity of assistant to Mr. Byers, had virtual charge of the sales department of the Producers' Coke Co., while his superior was

THOMAS J. DAVIS

engaged in Fuel Administration activities. He is a practical coke man of several years' experience and is also familiar with the railroad end of the business, having been chief clerk in the coal and coke office of the Pennsylvania R.R. at Uniontown, Penn., for a number of years prior to his employment by the Producers. The Producers is the selling agency for many independent operators and does an annual business of from $6,000,000 to $8,000,000.

R. E. Butler, superintendent and engineer for the Benoit Coal Mining Co., has resigned his position and opened an office in Jasper, Ala., as consulting and mining engineer. Mr. Butler, before joining the Benoit company, was for seven years chief engineer for the Republic Iron and Steel Co. in Alabama.

C. B. Stewart has been appointed general superintendent of the Coal Bell Coal Co. operations at Bentree, W. Va. Mr. Stewart has been identified with the coal-mining industry in the Kanawha and New River districts for several years, and has a broad general knowledge of electrical and mechanical coal mining.

Thomas W. Davis, commissioner of the Michigan Coal Operators Association, has resigned his position, to become effective Mar. 1. Mr. Davis, who has been commissioner since 1901, with the exception of one year spent in the West, was from 1887 to 1899 in various positions of responsibility with the mine workers' organization.

William T. Grier has resigned as secretary of the Anthracite Committee of the United States Fuel Administration effective Feb. 1. The work of the Anthracite Committee has become greatly lessened since it became possible to permit free distribution of all sizes of anthracite other than stove and nut. Prior to becoming secretary of the committee Mr. Grier was connected with the Lehigh Valley Railroad Co. in New York City.

Industrial News

New York, N. Y.—The incorporation of William Farrell Sons, Inc., of this city, was announced in Albany on Tuesday, Jan. 28. The corporation, which will deal in coal, wood and ice, is capitalized at $12,000,000, and will have $4,000,000 eight per cent. cumulative preferred stock, par value $100.

Pittsburgh, Penn.—The Beckwith Machinery Co. has opened a Cleveland office at 1227 West 9th St., in charge of E. G. Stoner, assisted by C. Z. Dally, of the Pittsburgh office. The Beckwith company handles hoisting engines, concrete mixers, engines and boilers, and expects to carry a complete stock of such equipment in Cleveland, as well as in Pittsburgh.

Brownsville, Penn.—At the annual meeting of Snowden Coke Co. in Pittsburgh, Penn., on Jan. 16, Charles Snowden, of this place, resigned as president of the company, and **Isaac Taylor**, of Uniontown, general manager, was elected president. The operations of the company are near Brownsville on the Redstone branch of the Pennsylvania R.R., and consist of a large mine and 300 Mitchell rectangular coke ovens.

Washington, D. C.—The second offering of unsold portions of the coal and asphalt segregated deposits in the Choctaw and Chickasaw Nations will be made between Sept. 15 and Nov. 15 of this year in place of December and January, 1920, under terms of the Indian appropriation bill ordered reported to the House on Jan. 14. Only one-tenth of the tracts were taken at the first sale. It is provided that at the second sale the deposits must bring the appraised value, as in the first sale.

Columbus, Ohio—E. E. Learned, who was in charge of the office of the Hisylvania Coal Co. and allied interests during the absence of Secretary E. W. Blower, has been made sales manager and purchasing agent of the concern. The company has moved its offices from the twelfth to the sixteenth floor of No. 8 East Broad St., which give additional space. The former offices of the company have been occupied by the Consolidated Mining Co., which moves from the Columbus Savings and Trust Building.

Jefferson City, Mo.—The Workmen's Compensation bill to be introduced in the House for the State Federation of Labor has been modified to meet objections of employers. Under the modification it will provide a "waiting period" of three days before compensation shall be paid for any accident. The employers have also prepared a bill to be introduced, but sponsors for the Federation bill hope to make it so nearly acceptable to the employers that they will not push their own bill vigorously.

Louisville, Ky.—The rapid motorization of large retail coal company delivery equipments was shown a few days ago when the Byrne & Speed Coal Co., of Louisville, advertised the following items: "For Sale—14 coal wagons and carts; seven double sets of harness (almost new); 14 head of mules." This company is using Federal trucks in delivery. The Atlas Coal Co. went exclusively to motors, was unable to find a market for the carts, and burned them in its yards, realizing more for the metal before peace was declared than it could for the carts.

Charleston, W. Va.—Deaths in the coal mining industry of the State of West Virginia in December totaled 34, all except four of such deaths being inside mines. Deaths from falling roof and coal continue to lead all other causes, there being 13 during December. Seven deaths were caused by mine cars and five by motors. One casualty was caused by a premature explosion and four by a local gas explosion at Havaco. Outside the mines one fatality was caused by a mine car, two by motors. The largest number of deaths was in McDowell County. Of those killed, 21 were Americans and 13 were foreigners.

New York, N. Y.—Cosgrove & Wynkoop, Ltd., which recently opened offices in the Singer Building, is developing a large export trade. This firm was organized early this year. Mr. Wynkoop, the president is well known in the coal trade, having been connected with Watkins & Co.; while the other member of the firm is John C. Cosgrove, the Johnstown operator. He is the treasurer of the firm. Other officers are H. J. Meehan, vice president; A. Kemmerer Cosgrove, manager of the Philadelphia office of Cosgrove & Co., is the secretary. The firm has an export loading capacity of 2000 tons per day and is the sole export agent of the Lenox Coal Co., Homer City Coal Co., Ernest Coal Co. and Thermal Smokeless Coal Co. It also handles New River and Pocahontas coals and anthracite.

Fairmont, W. Va.—Under a reorganization of the Fairmont and Cleveland Coal Co. E. A. Russell has been elected secretary of the company to succeed J. F. Straight who resigned. The new secretary has for several years been the manager of the Twin Mountain Orchard Ry., and prior to that was connected with the Consolidation Coal Co. The officers of the company as now constituted, are W. E. Watson, of Fairmont, president; E. F. Hartley, of Fairmont, first vice president and attorney; Friend Cox, of Wheeling, second vice president; John W. Poling, Fairmont, third vice president; Glenn F. Barnes, treasurer. The Rosebud Fuel Co., which was operated as a sales company for the Fairmont & Cleveland Co., will be dissolved and hereafter the company will handle all sales matters. The Fairmont & Cleveland Co. operates on Parkers Run, Marion County.

MARKET DEPARTMENT

Weekly Review

What Market Conditions Will Be With Elimination of Government Control Open to Conjecture —Some Price Cutting on Medium Grades of Soft Coal—Practically No Demand for Anthracite.

WITHIN the next few days the bituminous coal industry will find itself functioning as it did in pre-war times, for on Feb. 1 all the handicaps and restrictions imposed by Federal control during the past two years will have been removed. Market conditions in the near future will as a result be determined solely by the manner in which the producer and consumer of soft coal react to the newfound freedom.

It is impossible to conceive of the coal industry returning again to price-cutting and cutthroat competition; and large purchasers who purposely kept out of the market in recent months, in the belief that when Government control ceased they could name their own price for fuel, will find that the old order has passed, never to return.

The elaborate system of reports required by the Federal Fuel Administration during the war period has taught many operators their true cost of production, a knowledge that was woefully lacking before the Government took hold of the industry. With wages as high as they are at present, and the cost of material and equipment still "in the clouds," coal will hardly be cheaper. If the consuming public will not pay a price for coal that will enable the operator to make a legitimate profit, the coal will not be mined. Already a great number of operations have shut down rather than work at a loss, and instead of paring down prices to meet the figures set by purchasing agents many mine owners have signified their intention of doing likewise.

It cannot be overlooked, however, that at the present moment fair-to-poor grades of bituminous coal are being offered here and there at prices considerably lower than the Government maximums. The overstocked condition of the market, the closing down or restricted operation of many factories and the phenomenally mild weather are factors that tend to work counter to the best interests of the coal mining industry. High-grade bituminous coals continue to maintain their price levels, with a strong probability that they will go higher with the elimination of Federal price control.

Retail demand for anthracite is practically nil, for reasons that are obvious. The one-third withheld from consumers by the fuel authorities early in the year in most cases is now not wanted. In the majority of instances original applications were padded, the two-thirds delivered representing virtually the entire season's requirements.

WEEKLY COAL PRODUCTION

Bituminous—The production of bituminous coal in the week ended Jan. 18 is estimated at 9,943,000 tons, a decrease of 423,000 tons compared with the week of Jan. 11, but an increase over the same period of 1918. The daily average in the week of Jan. 18, 1919, is estimated at 1,657,000 tons, compared with 1,422,000 tons the same week of 1918 and 1,738,000 tons in 1917. Production in January, 1917, was not hampered by storms such as were encountered in January, 1918, nor by lack of market as this year, as many consumers are using coal from storage accumulated last summer, and production is probably less than current consumption.

The estimated production of bituminous coal from Apr. 1, 1918, to date is 476,563,000 net tons, an increase of nearly 36,000,000 tons over the corresponding period of 1917-18.

Anthracite—Estimates of the production of Pennsylvania anthracite show continued improvement in the output which, for the week of Jan. 18, 1919, is 1,786,000 net tons compared with 1,651,000 tons the corresponding week of 1918. Although production during the coal year to date is more than 1,500,000 tons less than corresponding period of 1917-18, the current needs of the country for anthracite are apparently being fully met, because of the careful distribution of domestic sizes by the Fuel Administration and the warmer weather this winter compared with last winter.

New England Shipments—Shipments of coal to New England in the week ended Jan. 18, both by all-rail and tidewater, increased over the week ended Jan. 11. Baltimore was the only port to show a decrease. Shipments through rail gateways were nearly 116,000 net tons, compared with 106,000 tons the week of Jan. 11 and 195,689 tons average weekly Apr. 1, 1918, to Jan. 18, 1919. Tidewater shipments were 195,000 tons, compared with 149,400 the week of Jan. 11 and 321,565 tons average for the coal year to date.

Tidewater Shipments—Bituminous coal dumped at North Atlantic ports in the week ended Jan. 18 was 706,000 net tons, an increase compared with 561,565 tons the week of Jan. 11 of 144,500 tons. Baltimore recorded a decrease, but both New York and Philadelphia and Hampton Roads had substantial gains.

Beehive Coke—The production of beehive coke in the week of Jan. 18 is estimated at 557,000 tons, the third successive increase over the low record of Christmas week. Operators in the Connellsville, Greensburg and Latrobe districts reported operation at 76 per cent. of railroad rated capacity, an increase of 72.6 per cent. over the previous week. Production of beehive coke in these regions is reported as 334,431 net tons and shipments of 160,950 tons of coal.

Byproduct Coke—The production of byduct coke in the week ended Jan. 18 was 553,610 tons, an increase over the week of Jan. 11 of nearly 26,000 tons. This increase was due, in part, to increased capacity and better demand for coke, and repaired plants. Increases in capacity were reported from Pennsylvania, where additional ovens were operated at the new Clairton plant, and in Colorado and at Youngstown, Ohio. The percentage of capacity reached in the week of Jan. 18 was 83.9, compared with 81.0 per cent. the previous week. Various reasons were assigned for the increase from 4.5 per cent. to 7.7 per cent. in capacity lost for other causes, among others delay occasioned through transportation difficulty in getting empty cars placed for loading.

BUSINESS OPINIONS

Dry Goods Economist—Readjustment of selling basis of cotton fabrics continues. Prices of well known lines of bleached cottons, wide sheetings, pillow tubings, tickings, outing flannels, ginghams, madras and chambrays have been cut by mills and their selling agents. The attitude of labor in textile plants and in the cutting-up industry is becoming a source of grave concern. Demands for decreased hours of labor are heard on all sides.

Bradstreet's—The trade situation, though slack, is not without redeeming features, and there is enough sunlight to prevent an unrelievedly gloomy picture being painted. Perhaps the most encouraging feature from the standpoint of the long-suffering consumer is the continuance of the declining tendency shown in food prices. While this tendency is most manifest in butter, cheese and eggs—dairy products, in short,—and mild weather and cancellations of our own and Allied government orders may be chief reasons therefor, there is little disposition to question the cause in view of the agreeable effect.

Iron Trade Review—In Pittsburgh, steel works are operating at an average of 70 per cent. capacity. About thirty blast furnaces have been blown out in the East, and South Buffalo furnaces are again becoming a powerful factor in the New York pig iron market, owing to the fact that the freight rate from Buffalo to the metropolitan territory is lower than the rate from Pittsburgh. Inquiries for 5000 tons of foundry iron for delivery during the first half are now pending in New York. Moderate export activity continues. Japan, which is actively pushing its shipbuilding program, has placed 35,000 tons of plates in the Chicago district and ordered 10,000 tons of pig iron.

The Iron Age—With new bookings less than half of current production, the industry is measurably nearer the moment of total deflation from the war basis. In many lines of finished steel there is not much over a month's work ahead. The encouraging feature from the buyer's standpoint is that labor now idle shows a disposition to resume at reduced wage rates and firm offers for steel at below present levels are now the more likely to lead to successful negotiation. January pig iron production will be considerably below that of December. A downward revision of coke prices, seeing that Federal control will be relinquished Feb. 1, and that capacity is now much greater than demand, is a factor in the readjustment.

Marshall Field & Co.—Current wholesale distribution of dry goods is in excess of the same week of 1918. The total of road sales for immediate delivery also was greater compared with a year ago. Fall lines have not yet been opened. Retailers are stimulating their sales most effectively and are rapidly reducing their heavy stocks. They are buying from hand to mouth to replace sold out merchandise and are not making any heavy purchases as during the past seasons. The radical reduction in the prices of staple cottons together with the revision downward in gingham prices has given more confidence to the trade generally. More customers were in the house, compared with the same week of 1918. Collections continue good.

American Wool and Cotton Reporter—Reductions in wool prices have already taken place, but discussion has created an impression among buyers that great concessions can still be made. It is natural for prices to decline when the demand is relatively small, but since the Government has established the new low prices for raw material, it would seem unwise to expect quotations for cloth to be figured upon any lower raw material basis. Buyers of cotton goods are not satisfied that the low market levels have been reached, since cotton has not declined in a way to compare with the decline which has occurred on goods. The attitude in regard to guaranteed prices shows that buyers are uncertain as to the course of the market.

Dun's—For nine weeks running, recessions have outnumbered advances in a representative list of wholesale quotations, and in retail channels, where accumulations of merchandise have resulted partly from unseasonable temperature over a wide area, some offerings are being made at material concessions. But while certain markets have been lately turning downward, and though efforts to stimulate demand are increasing, the price reaction apparently has not yet gone far enough to promote the anticipated business revival, and the prevailing situation, in the broader sense, remains one of diminishing consumption and production. This condition finds plain reflection in the decided halting of industrial activities, especially in the leading Eastern centres, and current reports of idle machinery and growing unemployment contrast sharply with the recent great manufacturing pressure and universal complaint of labor scarcity.

Atlantic Seaboard

BOSTON

Prices continue anything but firm. Only scattered sales, although movement all-rail shows notable increase. Tidewater situation about the worst ever known. Sellers have great difficulty placing coal. Hampton Roads dumpings for New England continue extremely light. Industrial activity slows down to marked degree. No inquiry for loading over New York piers. Trade interested in possible moves for next season. Shipping Board gives no sign of change in policy. Anthracite gets rapidly easier. All-rail receipts show increase. Lack of orders for broken, egg and pea. Middle houses actively solicit business. Retail demand very light.

Bituminous—The operating interests are laying siege to this market in their efforts to get orders for prompt shipment. Through Boston houses and by their own representatives quotations are being freely made all the way down to $2.40 for fair coals in the central Pennsylvania district. Indeed no buyer is left without the impression that any reasonable offer would be accepted for the sake of keeping certain mines in operation. All this activity results in little more than a feeling that the coal market is badly demoralized and that $1.25 @ 1.50 coal is a possibility for April and May. Certainly there will be no broad market by that time; there are opinions here that buying will not begin before July, so well stocked is this entire territory in every branch of industry and public service.

There have been some scattered sales the past fortnight, but for the most part salesmen are not able to get much response. Even small consumers whose storage is limited are cautious about buying, so little faith is there in present prices. Every buyer, large or small, is being hounded today to supply consignments, and no such thorough canvassing has been carried out in years as that now in progress throughout New England.

The tidewater situation could hardly be worse than it is at this writing. Extraordinary expedients are resorted to in order to place water-borne coal. There have been instances where cargoes have been consigned to a neutral point like Newport, R. I., "for orders," and there have been cases where cargo balances of 300 to 400 tons have been set out into the stream after the major portion of the cargo had been discharged and the barge allowed to wait until the balance could be placed. Shippers who have Emergency Fleet Corporation steamers under charter are at their wits end to know what to do with these bottoms the balance of the charter term. Eighteen steamers are now tied out in Boston Harbor awaiting business and the number will be augmented almost daily. Consignees who were counted upon to take monthly quotas to Apr. 1 are now confessing their utter inability to do so. All such calculations were based upon something like normal business, and no such condition as now prevails was foreseen.

Steam grades at the New York piers seem to be more and more a drug on the market. Inquiry is almost nil, and except for bunker use and for railroad fuel in railroad-owned barges, there is almost no coal being dumped. The relatively low rates on company barges to points east of Boston makes it an inducement for a limited tonnage to be moved in this way, rather than in steamers at the Shipping Board rate from Hampton Roads.

Under the conditions it is quite natural that the Hampton Roads shippers should take counsel together over the outlook for next season. Some conferences have been held, and as a result it is rumored there is some idea of selling on the basis of $3 f.o.b. mines for Pocahontas and New River. This means in excess of $5 f.o.b. loading port, a price level that today seems impossible to realize for coastwise business, so long as marine freights are unchanged. To try to maintain any such price the coming season looks much like inviting the same situation that followed a similar attempt in 1903, after the big strike. The price mark established that year in the spring was $3.35 f.o.b. Hampton Roads, only to drop by June 15 to $2.40 and $2.50. New England certainly cannot be relied upon to support an increased price program from the West Virginia fields, while Pennsylvania grades are so accessible and at a differential never so great in their favor.

Meanwhile the Shipping Board gives no sign of any change in policy as to coastwise freights; $3.25 continues the rate from Hampton Roads and $3.50 from Baltimore, leaving shippers to hold coal at the piers or at the mines and tie up the steamers they have under charter. More and more the much-talked-of export market fails to meet expectations and output in most of the Southern fields shows a steady decline.

Anthracite—Receipts of domestic sizes show further gains from week to week. The six days ended on Jan. 23 showed a daily average of 439 cars passing the New England gateways as compared with 330 cars for the first half of the month. Everything that looks like an order for broken, egg and pea is now being shipped, and many dealers who forgot to cancel their requisitions in season are now wincing at the proportion of these sizes they are called upon to accept. The fact is that more than a few retailers who went to the Fuel Administration for assistance got their full share of egg size through that channel.

The Philadelphia and New York city markets are of course limiting their current requirements to stove and chestnut, the only sizes that an increasing number of New England distributors are in position to take, and the result is a great effort on the part of all the shippers to move the less desirable sizes. A few cargoes are still coming forward either all egg, or with a large proportion of egg, and perhaps a single hatch of chestnut or pea, but another fortnight will probably see practically nothing coming forward but stove and chestnut, the majority of retailers are so loaded up with other sizes.

Boston and New York houses who normally represent "independent" operators are once more actively in the business and soliciting orders. By water current freights are to their disadvantage, but there is enough softening in prices, especially on egg, to put them on an even basis with the companies. All-rail they are still making sales in some volume.

NEW YORK

Demand for anthracite slow and trade is cancelling orders. Situation resolves itself into a "waiting game," and only several days of low temperatures will create a demand. Dealers look for concessions on Independent coals. Concessions made to move the anthracite steam sizes. Bituminous market quiet. Mines are working about half time and buying is slow. Bunker coals maintain full prices.

Anthracite—The trade is inactive, and instead of booking new orders dealers are receiving cancellations. This latter plan is affecting "independent" coals more than "company" coals, with the result that shippers of the former find it almost impossible to obtain the 75c. differential for their product.

The restrictions against stove and chestnut coals remain in force, but there appears to be plenty of these sizes to take care of all requirements.

Shippers of "independent" coals have about reached the point where they may have to suspend shipments from the mines, which will, of course, result in a slowing down of production. This action, it is understood, has already been taken by some small producers.

The outlook for better business here is not good. With spring not many weeks distant, neither dealer nor consumer is anxious to fill his bin with high priced coal when there is a possibility of the usual spring reduction. Reports from the coal fields are not so bright as they might be. There are occasional labor troubles, and the hope held out that as soon as they were discharged from their country's service the men would return to their former places in the mines has not come true altogether. Many of the men, according to information received here, are looking about for positions in other industries, many of them anxious for clerical places. The authorities, however, hope they may be able to induce most of the men to return to the mines for the winter, at least, in order to help the present labor situation.

Conditions along the line are much better than at Tidewater. "Independent" operators are able to dispose of most of their product to the inland trade, but are not always able to secure their full price.

Whatever may be said as to the lack of demand, the report of the Regional Director of Railroads shows that for the seven-day period ended Jan. 24 there were 6558 cars of anthracite dumped at the local docks. This was the largest week's dumpings reported since Sept. 27, when for the previous seven days 6727 cars were dumped. During the week ended Jan. 17 there were 4564 cars dumped.

The movement of the steam sizes may prove to be serious unless there is a decided increase in the demand for the domestic coals. These coals are almost a drug on the market, and operators are said to be stocking considerable. Quotations vary according to the grades. Buckwheat No. 1 was quoted as low as $3.15 at the mines, according to quality; rice from $2.25 to $2.50, and barley as low as $1 at the mines.

The retail trade has requested that the state fuel administration retain its supervision of the industry until Mar. 15 at least.

Current quotations, per gross ton, f.o.b. Tidewater, at the lower ports are as follows:

	Circular	Individual
Broken	$7.80	$8.55
Egg	7.70	8.45
Stove	7.95	8.70
Chestnut	8.05	8.80
Pea	6.55	7.30
Buck	5.10@6.05	5.90@6.25
Rice	4.65	5.10
Barley	4.15	4.30
Boiler	4.60	

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates. Prices for buckwheat, rice, barley and boiler are not fixed by the Government.

Bituminous—The concessions from the Government maximum prices at which various grade of bituminous coal can be purchased here offer no incentive for buying. There is a heavy surplus of all grades at this market, and apparently the only qualities holding their prices are the best bunker coals.

Movement is slow and inducements fail to create any demand. Operators are not reckless, however, about cutting prices, realizing that the selling figure must be sufficient to cover the cost of mining. Some producers have found it necessary to slow up mining, and in various sections of central Pennsylvania and nearby districts many of the mines are working about half time. In the Fairmont region it was said that on one day last week nearly 400 openings were idle because of the lack of orders.

The trade fails to see any light ahead unless there is a cold spell of several days' duration. Many manufacturers who laid in large stocks of coal last summer and fall are said to be disposing of much of their surplus to other consumers not so fortunate, or are transferring the coal to other of their factories. It was also reported that some railroads are refusing further shipments because of oversupplies.

Various shippers see no encouragement in the immediate future. With the present stocks on hand some believe there will be no activity until about June 1.

Several of the local loading piers were affected by embargoes during the week just ended. Reports received here indicate a further slowing down in consumption due to the closing of many factories. During the week ended Jan. 24 there were 6103 cars of bituminous dumped at the local piers, as compared with 4110 cars during the previous week, an increase of 1993 cars.

Current quotations, based on Government prices at the mines, per net ton f.o.b. tidewater, at the lower ports, are as follows:

	Mine, Gross	F.o.b. N. Y., Gross
Central Pennsylvania:		
Mine-Run, prepared or slack	$3.30	$5.45
Upper Potomac, Cumberland, and Piedmont Fields:		
Run-of-Mine	3.08	5.23
Prepared	3.36	5.51
Slack	2.80	4.95

Quotations at the upper ports are 5c. higher

PHILADELPHIA

Anthracite men becoming worried over outlook. Individuals finding it difficult to maintain prices and move production. Talk of restricting mining unless weather conditions change. Egg and pea draggy. Poor market for steam sizes, and prices being cut. No sale for barley or culm.

Anthracite—The market is rapidly approaching a critical stage. The shippers and the retail men both say something drastic must soon happen, unless there is a marked change in weather conditions. The retail men, especially, claim that nothing but severe and continual cold weather will keep equipment moving.

The trade appears surprised that the prices of the individuals have not broken. We have made repeated inquiries and cannot find that their 75c. differential has been cut into. They must be finding other markets for their product, especially on egg and pea sizes, for their trade is not only stocked with these two sizes, but it is not being moved. We do hear of their offering stove and chestnut for prompt shipment, if an equal proportion of egg and pea accompany the order. As last week, the suburban dealers appear busier than their competitors in the city proper, but even they say the end is in sight.

It must not be understood that the big companies are soliciting business, or are short of orders; that is, for prepared sizes. They are still shipping on orders entered as of Apr. 1, based on their 1916-17 business. They appear quite hopeful of conditions soon changing for the better, and before it is necessary for them to look for places to put their coal, at least before the end of the month. Naturally, their orders, with the lower prices, will be the last to be held. With a few exceptions, none of their salesmen are on the street, but next month, we have reason to believe, will see most of them looking over the ground. With the light demand for coal, the representative dealers are becoming quite apprehensive of how their numerous competitors will manage their business in the future. They claim it took a war to teach them how the business in the city should be conducted. Never before have the several hundred retailers located here worked in harmony. Price cutting and long-time credits have been entirely eliminated, and older and wiser heads are most anxious to maintain those high standards.

The dealers generally are not as yet informed of the new railroad ruling, prohibiting the loading of hopper coal cars of less than 75,000 lb. capacity. This will make quite a difference, especially to many small dealers located on Philadelphia & Reading tracks, whose yards are small, and who, before the present railroad administration, preferred the small Philadelphia & Reading cars, averaging 25 tons.

The individual operators are visibly worried over the outlook, and claim that while the present wage agreement with the miners is operative, they will lose money if they cut prices. We believe there is a movement on hand to restrict production by shutting down the collieries rather than equalize their rates with those of the big companies.

There is much speculation as to what the April price will be, and there are some in the trade who actually pretend to believe that the present company circular will be the basis of spring, with an increase of 10c. per ton for five months. The rumor, if such it may be called, has it that the individuals would adjust their prices to these figures. While we are much inclined to believe "the wish is father of the thought" with the small operators, we do know that they are seriously discussing this plan. Also do we know that they have never been satisfied with the increase in price of $1.05 per ton ordered by Dr. Garfield, on Nov. 1, 1918, to cover advance in miners' wages. They have all along claimed this was insufficient. On the other hand, it must be borne in mind that it is not new for the individual operators to want the big companies to advance their circular rates. The higher they are the better they like it. It places them in such a favorable position to undersell them, especially during dull periods, which, for years, has been the habit of some, and still receive a good price for their product. Just now, the "little fellows" are up a tree and are doing a lot of thinking.

There are no signs of steam trade improving. Buckwheat is away off, and has been offered at $3.10—perhaps 10c. lower. Some operators would be glad for offers of $2.40, for rice; barley and culm are practically out of the market; and it is said that no reasonable offer would be refused.

Bituminous—Operators report that a number of mines producing low-grade coal have closed down, and more are expected to follow suit. Prices for coal from these operations have been below those named by the Government. The majority of mines producing the higher grades are working, and it is proposed to close down rather than cut. Heavy tonnages consigned to piers lack boats in which to move the coal. This coal, in many instances, was sold at off prices, in order to release equipment, and now demurrage will accrue.

Numerous inquiries for export business are not being considered, because it is impossible to secure bottoms in which to ship.

BALTIMORE

More than enough coal to meet demands. Some consumers with big stocks of "war-coal" apparently dissatisfied now that better fuel is offering. Jobbers resuming old relations. Trade generally optimistic. Hard coal supply liberal in face of mild weather.

Bituminous—The situation here remains largely unchanged, for the trade has more soft coal than it can handle for the moment, despite the fact that numerous mines that usually supply this territory are closed or have shut down in part. There is practically no market here for less desirable fuels, even though many are offering at prices considerably off the fast-dying Government maximum. Some better coals are holding fairly well in price, but there is little real demand even for this class of fuel.

Some consumers in this territory, who during the war were most urgent to have purchasing agents secure fuel for storage over this winter, and who stocked up heavily on the kind of war-coal that was going to non-preferred industries, are now showing signs of dissatisfaction when better coals are offering at the prices paid for the inferior grades. The City of Baltimore, with some 40,000 tons on hand, is one of those making complaint, but the trade realizes that a mayoralty election is coming shortly and makes allowances.

With many mines anxiously seeking to get outlets for their fuels now that war contracts have come to an end, the jobbers here and elsewhere are in a position to get back into old lines of endeavor. The thing for the jobbers to do just now is to hustle around and find customers or to connect with old consuming interests.

Despite the present overstock of coal here, and the many cuts in prices, the trade as a whole is optimistic. With the dropping of Government regulation Feb. 1 it is believed it will only be necessary for business to clean up a bit on back stocks of poor coal before a healthy market at fair rates results.

Anthracite—Mild weather continues to cut down hard coal consumption here, and the supply of anthracite in this district is more than liberal. There can no longer be a doubt that many consumers will be able to get through the winter on the two-thirds delivered on orders early in the winter, unless February should be unusually cold.

Dealers here are already wondering whether there is to be a cut of even 30 to 50 cents in the spring. With prices as they now are, and with the threat of shortage of coal due to war work over, few handlers of coal here believe that the public will come in heavily in the spring for coal unless there is some inducement offered. Dealers say that there will not be any big stocking up by retailers on prospects in days when the mines require a cash trading. Not a few dealers see a big piling up of both wholesale and retail trading toward fall unless some attractive feature for early buying is worked out.

Lake Markets

PITTSBURGH

Market very quiet. Best grades nominally at Government limit. Steel industry's consumption decreasing.

There is practically no activity in the local coal market, and little progress has been made toward the development of prices that may be regarded as regular market rates. Producers of the best grades of coal regard the market as at the full Government limit and assert that they would not entertain bids at less. Lower grades could doubtless be bought at discounts, but there is no demand for them; indeed, there is little demand for any coal except high-grade gas coal, which appears to command the full price without difficulty.

Production of coal is confined almost entirely to the filling of contracts, and consumers as a rule find their contract shipments fully up to requirements, if not in excess. Negotiations against contracts for the new coal year will probably be taken up slowly, as neither buyers nor sellers have any definite idea as to what prices will eventually rule.

The steel industry, the biggest single consumer of Pittsburgh district coal, with the possible exception of the railroads, is running slacker and slacker each week. The mills are not only consuming less coal but are more indisposed to carry stocks. The winter, if it is a winter at all, is passing, and there is no prospect of great steel mill activity for months to come.

The market for the best grades of coal remains quotable nominally at Government limits, which are to come off at the end of January: Slack, $2.10; mine-run, $2.35; screened, $2.60, per net ton at mine, Pittsburgh district.

TORONTO

Market continues quiet. Dealers well stocked with all grades. Industrial reconstruction proceeds slowly. Demand for bituminous light.

The coal market is quiet and dealers report but few orders. Owing to exceptionally mild weather, which has prevailed for some time, the domestic demand is light and mainly confined to the poorer class of consumers. The yards are well stocked with all grades and shipments from the mines are coming forward promptly. The readjustment of the industrial plants lately engaged in munition work to normal lines of production is slower than was anticipated, many alterations being deferred in the expectation of a drop in prices of material; consequently there is little movement of bituminous. Prices are as a rule well maintained, but occasional reductions have been made in order to effect sales.

BUFFALO

Too much coal. No relief in sight. Weather as mild as fall. Question as to the future of the bituminous trade. Will it break. Anthracite plenty also.

Bituminous—The reports of more coal than the consumer will buy continue. It now looks as if it would be a hard matter to hold the trade, though there are some who say the operators will shut down rather than allow prices to drop too low. At the same time the surplus appears to accumulate everywhere. It was supposed that the Montreal district was too far away from the source of supply to become overloaded as other districts were, but members agree that it is piled full of coal and will not buy any more freely than other sections.

There is nothing for the coal jobber to do but to pick up here and there the sale of a car or two and wait until the market comes back. It is agreed that there is surplus enough in consumers' hands to make any sort of activity impossible for a long time.

In view of the bituminous stagnation and the coming end of arbitrary prices the quotation must be made with caution, but still most of the coal sells at former prices or thereabouts, $4.65 for thin-vein Allegheny Valley, all sizes, $4.45 for Pittsburgh and No. 8 lump, $4.20 for sale mine-run or slack, $5.65 for smithing or smokeless, $5.60 to $6.10 for cannel, all per net ton, f.o.b. Buffalo.

Anthracite—Distributors of hard coal in the city are now sending out notices to customers who gave anxious orders last summer, but who are not saying anything about the coal now, asking them if they want it and adding that they are prepared to deliver the full amount. The two-thirds rule that was made then looks decidedly odd now. Not a single consumer goes near the Government fuel office now. Many of them will not ask for more than the partial delivery promised them last summer.

It is said that the city will not begin to use up its allotment, though the fuel administrator was making anxious trips to New York all through the fall, asking for more. It is mainly the weather that has created the conditions. With such weather last winter the situation would have been easy and no fuel office would have been easy. It has scarcely been down to freezing temperature in a fortnight.

CLEVELAND

Official lifting of all Government restrictions in this district is not expected to bring any startling market changes. Upper lake dock operators face a serious situation from the order that permits Illinois coal to come by rail into the Northwest cheaper than coal can be shipped off upper lake docks. Steam coal is slightly more in demand, while prices are somewhat firmer.

Bituminous—The local coal market just now presents a rather anomalous situation. Unemployment is more widespread and labor is offering itself at greatly reduced prices—both indicative of decreased operations and lessened coal consumption—while at the same time the mines are working better, more steam coal is moving into northern Ohio and talk of shading of Government maximums is much more repressed. One operator points to the fact that out of 2967 cars of standard No. 8 coal shipped from his mines last week only seven brought less than the Government price. Operators not well situated as regards contracts, however, are not spurning offers of 25 to 35c. below prices that prevailed prior to Nov. 11, while the supply of stripping and thin vein coal that is obtainable at a concession seems inexhaustible.

Attention of the bituminous world here now is centered on the lake situation. The Northwest, like the more southerly portions of the Middle West, has suffered—from the coal man's viewpoint—from extremely mild weather and the unexpected end of the war. Coal has moved off the upper lake docks in at a rate far under expectations. Not only that, but Illinois coal now can be shipped by rail into most of the Northwest cheaper than lake coal can be moved off the docks. Consequently, the opening of the 1919 lake season is likely to see 2,000,000 tons or more left on the docks, whereas 1918 and 1917 saw the docks pretty well cleaned up. In pre-war seasons a dock balance of 750,000 to 1,000,000 tons in the spring caused comment.

Retail demand for bituminous has remained stagnant, with weather conditions such as to demand a minimum use of coal for domestic heating. Massillon lump is now bringing $7.10, West Virginia splint $7.15, and No. 8 Pittsburgh $6.35. These prices are little changed from those of the past 60 days.

Anthracite—Receipts are heavy enough now to stisfy the light demand, and dealers continue to compete for business. Egg is selling for from $10.50 to $10.90, delivered.

Lake Trade—With the upper lake docks well stocked with coal and lower lake docks with piles of iron ore several million tons above the average, the 1919 lake season is not expected to be opened much before May 1. This, coupled with the fact that most of the larger lake carriers are holding grain cargoes at Buffalo—where the ice goes out two weeks or more later than at Cleveland and Toledo—is looked to cut the 1919 movement to as low as 25,000,000 tons. So far only one 1919 coal cargo has been floated, and it is unlikely that much lake coal will move toward the docks before the latter part of March.

DETROIT

Lack of buying demand both in the steam trade and among retail dealers, owing to large stocks in possession of each, creates a dull market for bituminous in Detroit.

Bituminous—With large stocks of bituminous still held by many of the industrial consumers and a large proportion of the retail dealers, jobbers and wholesalers find business light. Several causes have retarded cutting down the large supplies that were accumulated in accordance with admonitions of the Fuel Administration a few months ago, and which include a considerable quantity of coal of an inferior quality that was bought because nothing better was then available.

Cancellations of numerous contracts for products for war use having been made, manufacturing plants are now in a period of unsettledness, which is emphasized by the policy of the Government in holding back settlements on contracts and claims of the contractors. The diminished industrial activity curtails consumption of steam coal and tends to prolong the time during which the large reserve will be a check on new buying.

Continuance of temperature conditions unfavorable to stimulation of buying by domestic consumers is one of the reasons why retailers' stocks are still an impediment. Another reason is found in the poor quality of much of the coal and its unsuitableness for domestic heating plants of the type generally used in Detroit. The increased supply of coke, which many householders, accustomed to the use of anthracite, prefer to burn in place of bituminous, also holds back distribution of retailers' stocks.

The prospective ending of zone regulations on Feb. 1, is unlikely to cause much change in market conditions in Detroit, until the stocks now here are cleared away.

Anthracite—Owing to the mild weather consumption of anthracite has not been so large as in previous years. Shipments continue small in volume, but a moderate supply is in the hands of dealers. Low temperatures continuing for a few days would be likely to bring a rush of orders. The coke supply has done much to relieve the situation and help out anthracite users who were unable to obtain a sufficient supply of coal to meet their entire winter fuel needs. Few of the retailers are in position to buy anthracite freely because of their heavy stocks of bituminous.

COLUMBUS

The coal trade in Ohio remains quiet to the extreme. The weather conditions are still unfavorable for domestic demand. Large reserve stocks of steam grades are reported in all localities. The market is now purely a weather proposition.

The domestic trade remains quiet, as the thermometer is still ranging around the summer heat mark. Retail stocks are still large, and dealers are not in the market for any large tonnage. There is a fairly good demand for the fancy grades, such as Pocahontas and West Virginia splints. Retail prices continue firm at the levels which have prevailed for some time. Hocking grades are also selling to a small extent. Some cutting is reported, but not sufficient to cause any flurry in the trade.

Steam business is slow in every locality. This is due to the large reserve stocks on hand and also to the fact that business is rather slow in becoming adjusted to peace conditions. Michigan and northern Ohio are well stocked up, and the same is true of every locality to which Ohio-mined coal is shipped. It is believed that little steam business will develop before April, and producers are looking around to ascertain the prospects for the lake trade. Reports show that there is a large tonnage at the head of the lakes, and unless something happens to hasten consumption prospects for the coming lake season are not bright. There is some shading of prices for steam grades, especially mine-run, but the larger operators are not sharing in the price cutting and are generally holding up fairly well.

Production has not been good during the past week. In fact it is said that the output has reached the lowest ebb in years. Reports show that the output in the Hocking Valley field is about 35 per cent. of normal, and other fields are producing only a little more. Eastern Ohio, which has been favored by large steam contracts, is producing not more than 40 per cent. of normal. Little hope is expressed for an increase in production under existing conditions.

CINCINNATI

Remarkably mild weather continues, and demand is at a low level on account of limited consumption. Vigorous selling efforts are planned.

With a continuance of the same extraordinarily mild weather which has been experienced during nearly the entire winter, the hopes of the coal trade for a stimulation to business through more seasonable temperatures are gradually giving way to the conviction that there will be a heavy surplus of stored coal carried over after the winter has passed. It is of course possible that February and March will bring some severe weather, and force not only increased consumption of coal in the hands of consumers, but an additional demand for fuel; but as the season advances, with spring-like temperatures prevailing, and a corresponding lack of necessity for fuel, this possibility becomes increasingly vague as a definite factor in the situation.

The lack of a market for the present production of the mines, together with the certainty of large holdover stocks, furnishes the necessity for selling efforts during the coming months of an intensity hardly heretofore paralleled in the coal trade; and such efforts will accordingly be made, judging by plans which are being discussed by jobbers' and operators' representatives. The removal of the Government restrictions which have operated to limit distribution will of course make it possible to enter into efforts of this sort much more freely than was possible with those restrictions in effect, and members of the trade in this section will therefore go after the business which they formerly handled all through the Middle West and the North.

LOUISVILLE

General demand for all grades quiet, with no immediate signs of improvement. Operators busy lining up prospects for spring shipping to the lake region. Prices weak, but effort being made to hold steady.

There has been little demand for any grade of coal for the past few weeks, and conditions are not improving as weather conditions continue mild and consumption in a domestic way is far below normal. Steam consumers in many instances are reported to be carrying stocks sufficient to run them for weeks and months, while industrial demand is generally quiet.

Little river coal is coming in, and prospects for movement are not so good as they were, due to the market being stocked. However, some coal is expected in February and March. West Virginia is making a bid to get back in the market with the lifting of the zones, both by rail and water, principally rail.

The lifting of zone regulations is expected to improve conditions materially for a number of producers who have been shut off from their best customers for months past, and many expect to pick up where they left off.

Some price cutting is being done by mines which are long on production. Prices of 50c. and 75c. a ton under maximum Government prices have been quoted by long distance to local consumers of steam coal during the past week, these prices being for immediate delivery only, not on contract basis. Retailers are holding prices fairly well.

Eastern Kentucky and western Kentucky are both having trouble in marketing coal, western Kentucky probably having more trouble than eastern, except on some river business moving south, as there is very little demand for high grades and less for low grades.

Many mines are closed, and wagon mines and small mining companies are at a standstill. Labor is showing a surplus in many mining districts, and there is no shortage. Sidings are full of cars, although there is not much coal on cars waiting a market from the mines or at mines.

BIRMINGHAM

Conditions in steam trade easy, but requirements practically absorb the output. Domestic fuel short and market strong. Production making satisfactory gains.

There is an easy tone to the steam market here, and while there is a demand sufficient to practically take up the output of the mines, inquiries are not of an overinsistent character. The passing of Government control of prices, distribution, etc., is apparently causing little concern to either the producer or the consumer. There appears to be little likelihood of a lowering of prices as a whole, as the continuation of the present wage schedules will maintain a high cost. Such reductions and increases as will probably materialize with the return of the trade to normal conditions will be brought about by the adjustments based on quality. With a normal demand upon the district, which practically absorbs the output of the commercial mines, prices of the better grades of steam coals will more than likely advance, while no material reduction is looked for in the Big Seam and other cheaper grades.

Owing to the pronounced shortage of domestic coals in this district, which condition has existed since Apr. 1, 1918, there will more than likely be an advance by domestic producers. Dealers throughout the district and state are unable to get anything like the tonnage desired.

District Representative Holmes, of the Fuel Administration, has notified producers and jobbers that all requisitions made for coal and coke through any of the Fuel Administration agencies are cancelled, effective Jan. 31. Coal production for the week of Jan. 11 showed a gain of about 26 per cent. over the previous week, the output being 339,080 net tons.

Coke

CONNELLSVILLE

Coke market declining. Furnace coke becomes heater coke. Byproduct coke offered. Production increased.

The coke market lost no time in exhibiting decided signs of weakness upon the Fuel Administration's announcement that its price control would end with the month of January. At the beginning of last week fair grades of furnace coke were offered at $5.75, against the Government limit of $6, while indifferent grades found no sale at all to blast furnaces and had to be sold for heating purposes, bringing lower

and lower prices until by the end of the week $5 or less was the price.

While producers now attempt to explain that prices for "heater coke" have nothing to do with the regular coke market, blast furnaces point out that during the war equally poor coke was shipped to blast furnaces and invoiced at the full Government price, while furnaces were afraid to complain of quality for fear shipments would be shut off. There has been a limited demand for coke by blast furnaces, which as a rule do not bid over $5.50, and at this price they secure some coke of fair grade.

In foundry coke there has been an equal divergence on account of quality. Makers of the best brands still adhere to $7, the Government limit, but foundry coke of fair grade can be had at $6.50. The market is quotable at $5.50@5.75 for furnace coke and $6.50@7 for foundry coke, per net ton at ovens.

Producers of byproduct coke have been offering surplus lots to contiguous blast furnaces, and some sales have probably been made; but this coke does not get into the open market as it is always sold to nearby furnaces.

Nearly all the blast furnaces have contracts for coke, either for the half year or the whole year. Some of the contracts provide that in the event of the Government price control being taken off, the parties shall negiotiate to determine a fair settling basis week by week or month by month, while the others provide that "last Government price" shall rule. Several furnaces having such contracts have already notified coke operators that they desire to discuss this matter, evidently with a view to asking a price reduction. Their argument would be that otherwise they will have to go out of blast, and as the contracts are "requirement contracts," this would constitute quite an argument.

The "Courier" reports coke production in the Connellsville and Lower Connellsville region in the week ended Jan. 18 at 291,332 tons, an increase of 19,966 tons, and shipments of raw coal at 195,693 tons, an increase of 24,778 tons.

Buffalo—The situation continues to ease off along with soft coal, and it is not now expected that any further shortage will occur for some time, if again this winter. The furnaces are getting most of their supply from the local byproduct ovens and prices range so as to compete with the Connellsville prices, which are $7 and $6 for the foundry and furnace grades. The freight here is $2.60 net. Fuel coke is as dull as bituminous coal. Dealers in it find that it does not compete closely with any coal and have to cut the prices to find a sale.

Middle Western

GENERAL REVIEW

News of removal of soft coal restrictions causes uncertainty. No market on any grade of coal.

The news of the lifting of all bituminous zone and price restrictions came as a surprise to the majority of the coal trade in the Middle West. It was generally known that restrictions were to be removed, but it was not expected that this would take place before Apr. 1, at least. These radical changes, which are to be effective on Feb. 1, have infused into the market an element of uncertainty and hesitancy which is anything but welcome at this time.

So far as the zone question itself is concerned, the effect of the new order is of far more importance to the retailer than to the manufacturer. Generally speaking, the retailer uses a substantial tonnage of Eastern coal, heretofore zoned out, while the manufacturer is only interested in short rate fuels, usually mined fairly near his plant. The average retailer in the Middle West is loaded to the guards with Mid-West coal. His trade, now that higher grade products from the East are available, will want better coal, and he will have to supply it. As a result, he will have to place orders for more coal, even if his bins are filled to overflowing with the Western product. It is a bad problem to be worked out, and it is going to be watched with interest. The operators will be as much affected as the dealers by the changes. Large tonnages of Illinois and Indiana coal replaced during the past year Eastern fuels. It will develop within the next few weeks whether or not Mid-West operators will be able to hold their ground against the inroads of Eastern coal. In the event that Eastern coal wins back its old position with the Mid-West trade, it will mean that another burden is added to the Illinois and Indiana operators.

The present market on all coals is hard to describe, chiefly because there is no market. Practically no purchases are being made, as all buyers are waiting to see what is going to happen, and by this waiting process it is believed they hope to break the market down to figures considerably below the coal prices, as set by the United States Fuel Administration. This is equally true of the railroads, as well as the general buying public. It may be said, in behalf of the manufacturer, however, that he has better grounds for keeping out of the market than the railroads have. In the first place, the manufacturer was loaded up to the maximum by the Fuel Administration, and in the second place, the end of the war made so many changes that he is justified in going easy for a while. The railroads, however, are about as busy as ever.

The question of railroad coal, by the way, is causing considerable comment unfavorable to the Railroad Administration. The opinion is that the railroads have no right to a price better than that given the general public. Furthermore, it is stated that the railroads are faced with the problem of reducing their operating expenses. There are, roughly speaking, two means by which they may accomplish this. The first, reduce wages; the second, purchase coal at a reduction. For many obvious and politic reasons, they will not reduce wages, as they do not want the responsibility of such a grave step. They have left to them, therefore, the remaining plan of buying their coal at a reduction. If they are able to do this, it will mean the operators will be forced to close their mines or reduce wages.

CHICAGO

Both steam and domestic demand practically dead. Plenty of anthracite coal to be had.

The weather in Chicago, and in fact the whole Middle West, has been very soft and springlike for the last week or ten days. As a result, much less coal is being burned than is normally consumed at this time of the year. The steam users are taking advantage of the present situation to reduce the large stocks they accumulated during the summer months at the order of the Fuel Administration, and consequently are not in the market at this time.

The domestic situation is practically dead at this writing. As soon as the news came that Eastern coal was to be allowed in this territory, the retail dealers naturally stopped buying Illinois and Indiana coal, in order to make room for Eastern coal, to be moved in after February 1. There has always been a certain demand for Eastern coal, and the retailer is reducing his stocks so that he will have a place to put his high-grade Eastern product.

It is stated that one company, operating mines in the Pocahontas district, and having a sales office in Chicago, received orders for 65 cars in less than two hours. This will give an idea as to what coal is being purchased now for domestic uses.

The anthracite situation is very easy. All restrictions, so far as the retail distribution is concerned, have been removed, and the householder may now obtain all the anthracite he wishes. According to information picked up from various dealers in and about Chicago, they are receiving all the hard coal they desire.

MILWAUKEE

Coal market one of the poorest on record. Decline in price of bituminous predicted. Hard coal unaffected by conditions. Movement of fuel slow all around.

The coal market at Milwaukee continues extremely dull, the season's business thus far being characterized as one of the poorest in the history of the trade. There is little demand locally, and the movement to the interior is simply nominal. Last year at this time hard coal was being dealt out gingerly in ton lots, and the problem of delivery was complicated by snow and ice. There were also restrictions on orders of soft coal. Up to the present time this season there have been only a few days of real cold weather, and the consumption of fuel has been abnormally light.

There is an overabundance of soft coal on the market, and a decline in prices of this character of coal is looked for by Fuel Administrator Fitzgerald about Feb. 1 because of the discontinuance of maximum prices at the mines and the elimination of the zone system of distribution. The maximum prices at the mines now range from $2.35 to $4.95 per ton.

Hard coal remains unaffected by the unseasonable conditions. Maximum prices on anthracite will remain in force. Customers are now being solicited and advertised for at the following prices: Egg, $12.20; stove, $12.40; pea, $11.05; buckwheat, $10.60. An added charge of 50c. per ton is made when coal is carried in.

Solvay coke is advertised at $11.50 and gas coke at $11. The coke schedule includes carrying-in charges.

The state and county fuel administration offices will be closed on Feb. 1.

ST. LOUIS

Mild weather continues to demoralize the market. No local or country call for steam or domestic. Steam sizes heavy. Trade much depressed and miners restless.

Continued mild weather has brought the market to an absolute standstill. This has even gone so far as to affect the Williamson and Franklin County fields. It is impossible to move steam sizes at almost any price, and the result is that mines all over the southern Illinois field are idle because they cannot dispose their screenings.

There is practically no country call for steam coal. This is a blessing in disguise, for steam coal could not be furnished on account of the surplus stock that the screening size would produce.

There is practically no domestic business excepting in small quantities, and retail firms with from ten to twenty delivery teams and trucks have use for about one. The supply of coal put in by the consumers last summer will in most instances last until the first of April.

This condition is prevalent all over this territory.

In the Standard field some mines work one day a week and some have been down for over a week. The miners in these districts are dissatisfied and figure that when they do work they will have to get more money in order to exist.

There is a small railroad tonnage going out, but nothing to speak of and the operators are fighting for this.

The question of getting a price that will pay for the cost of production seems to be somewhat vague, and there is no chance in the world for any kind of a contention on the part of the Government that these operators are in any kind of a combine to hold up prices. If they need any control at all it should be under the supervision of the Federal Trade Commission, which is generally supposed to advise corporations how to keep away from the bankruptcy courts.

In the Standard field the screenings are down to $1.25 for 2-in. lump, to $1.50; 6-in. lump from $1.75 up; mine-run at $1.55 to $1.65.

In the Mt. Olive field conditions are bad, but the operators are holding their prices with one or two exceptions. There is some railroad coal moving out of this field, and the greater tonnage of domestic moves north and west.

In the Williamson and Franklin County fields they are beginning to feel the effect of the mild winter for the first time. Several mines are idle on account of their failure to move screenings, and others have not enough lump and egg orders if they did want to work. The nut sizes are also slow in moving, some mines having to suspend work because they could not move the nut. The car supply everywhere is abundant and transportation shows some improvement, except on the Iron Mountain lines.

There is an effort being made by the larger operators in St. Louis to create selling agencies for all the mines on each line of railroad; for instance, all the mines on the Illinois Central, from Pickneyville to Belleville, will be handled by one company on a commission basis and another company would handle the sales from the Louisville & Nashville mines and another from the Baltimore & Ohio mines, etc. This would be an admirable plan if carried out without any malice, but the petty jealousies that exist in these fields prevent this from being carried out by local management. It can be successfully done if an outside, disinterested party were to take supervision of the work. The operators distrust their own leaders, and while that condition exists no hope can be held out for a just price on coal from the so-called Standard field.

About 100 cars of anthracite egg are now in transit to St. Louis, a few cars having arrived, and a few cars of West Virginia smokeless. Arkansas is practically out of the market on account of its high price. Coke is heavy with little call and nothing to be expected. Colder weather is the only thing that will save what is left. At the present time there are about 65,000 to 70,000 tons of storage coal in St. Louis held by the larger dealers. Anthracite egg is scheduled to retail at $12.35.